

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 506

Injection pump
Pump designation : PE6P110A320RS483-1
EP type number : 0 411 816 160

Governor
Governor design. : RQV250...1200PA918
: -1
Governor no. : 0 421 813 773

Cust. part No. :

Customer-spec. information

Customer : VOLVO
Motor : TD71FS
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

Del. quantity cm³/1000 strokes : 18.0
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 5.0
Spred
Tolerance cm³/1000 strokes : 3.0
Check tolerance cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1260
guide sleeve travel mm : 7.80
Tolerance mm : ± 0.10

Rated speed rpm : 250
guide sleeve travel mm : 1.20
Tolerance mm : ± 0.10

Rated speed rpm : 380
guide sleeve travel mm : 2.45
Tolerance mm : ± 0.15

Rated speed rpm : 500
guide sleeve travel mm : 3.10
Tolerance mm : ± 0.20

Rated speed rpm : 1400
guide sleeve travel mm : 9.15
Tolerance mm : ± 0.15

GUIDE SLEEVE POSITION

control lever position degree : -1

Rated speed rpm : 1330

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure hPa : 1200
Del. quantity cm³/1000 strokes : 143.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 4.0
Spred
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 113.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1245
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1500

LOW IDLE

control lever position degree : 60.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.80

Testing:

Rated speed rpm : 250
 rack travel mm : 5.40
 Tolerance mm : + - 0.10

Rated speed rpm : 350

ANEROID/ALTITUDE COMPENSATOR TEST**SETTING**

Rated speed rpm : 500
 Pressure hPa : 1200
 rack travel mm : 13.15
 Tolerance mm : + - 0.05

Rated speed rpm : 500
 Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 270
 rack travel mm : 0.30
 Tolerance mm : + - 0.10

Pressure hPa : 700
 rack travel mm : 2.65
 Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 140.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 5.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 86.5
 Tolerance
 cm³/1000 strokes : + - 1.5

Check tolerance
 cm³/1000S. : + - 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : + - 0.50
 Del. quantity
 cm³/1000 strokes : 185.0
 Tolerance
 cm³/1000 strokes : + - 15.0
 Check tolerance
 cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 250
 Rack travel in mm : 5.40
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 703

Injection pump
Pump designation : PE6P110A720RS3006
EP type number : 0 411 816 703

Governor
Governor design. : RQV250...1100PA242R
Governor no. : 0 421 813 142

Cust. part No. :

Customer-spec. information
Customer : SCANIA
Motor : DS11 01

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.35
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.70

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 225

Rack travel in mm : 6.40

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + - 2.0

Speed
Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1100

Rack travel in mm : 16.50

Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 700

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 64.0

tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.20
Rated speed rpm : 1145
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1275
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 10.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.80

Testing:

Rated speed rpm : 250
rack travel mm : 6.40
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : + - 30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.25
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.15
Tolerance mm : + - 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 260
rack travel mm : 12.40
Tolerance mm : + - 0.10

Pressure hPa : 335
rack travel mm : 12.85
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : + - 25.0

LOW IDLE

Rated speed rpm : 225
Rack travel in mm : 6.40
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + - 2.0
Spread
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 758

Injection pump
Pump designation : PE6P110A320RS31082
EP type number : 0 411 816 728

Governor
Governer design. : RQV250...1100PA920
Governer no. : 0 421 813 777

Cust. part No. :

Customer-spec. information

Customer : VOLVO
Motor : THD100EB
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 1

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 3.05
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm3/1000 strokes : 123.0

Tolerance
cm3/1000 strokes : + - 1.0

Check tolerance
cm3/1000S. : + - 4.0

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.40
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 950

guide sleeve
travel mm : 6.50
Tolerance mm : + - 0.20

Rated speed rpm : 250

guide sleeve
travel mm : 1.20
Tolerance mm : + - 0.10

Rated speed rpm : 500

guide sleeve
travel mm : 4.50
Tolerance mm : + - 0.40

Rated speed rpm : 700

guide sleeve
travel mm : 6.50
Tolerance mm : + - 0.20

Rated speed rpm : 1100

guide sleeve
travel mm : 7.25
Tolerance mm : + - 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1175

Rack travel in mm : 16.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1165
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 11.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.80

Testing:

Rated speed rpm	:	250
rack travel mm	:	5.40
Tolerance mm	:	+/- 0.10
rack travel mm	:	2.00
Rated speed rpm	:	380
Tolerance 1/min	:	+/- 30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	750
rack travel mm	:	10.55
Tolerance mm	:	+/- 0.05
Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	9.70
Tolerance mm	:	+/- 0.10

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	310
rack travel mm	:	10.30
Tolerance mm	:	+/- 0.10
Pressure hPa	:	265
rack travel mm	:	9.95
Tolerance mm	:	+/- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	700
Del. quantity		
cm ³ /1000 strokes	:	107.0
Tolerance		
cm ³ /1000 strokes	:	+/- 1.5
Check tolerance		
cm ³ /1000S.	:	+/- 4.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
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rack travel mm	:	20.50
Tolerance mm	:	+/- 0.50
Del. quantity		
cm ³ /1000 strokes	:	175.0
Tolerance		
cm ³ /1000 strokes	:	+/- 15.0

LOW IDLE

Rated speed rpm	:	250
Rack travel in mm	:	5.40
Tolerance mm	:	+/- 0.10
Del. quantity		
cm ³ /1000 strokes	:	32.0
Tolerance		
cm ³ /1000 strokes	:	+/- 2.0
Check tolerance		
cm ³ /1000S.	:	+/- 4.5
Spread		
Tolerance		
cm ³ /1000 strokes	:	3.0
Check tolerance		
cm ³ /1000S.	:	6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 760

Injection pump
Pump designation : PE6P110A320RS3108X
EP type number : 0 411 816 730

Governor
Governor design. : RQV250...1100PA920
: -2
Governor no. : 0 421 813 779

Cust. part No. : 469609-P10 v. 10/96

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 102 KF

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Tolerance l/h : + 20.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5

A10

Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 9.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.90
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spred
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 950
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.20

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : \pm 0.10

Rated speed rpm : 700
guide sleeve
travel mm : 6.50

Tolerance mm : \pm 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.30

Rated speed rpm : 1100
guide sleeve
travel mm : 7.25
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1175

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.90
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1250

Tolerance 1/min : + - 15
rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1350

Pressure hPa : 840
rack travel mm : 3.00
Tolerance mm : + - 0.20

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : + - 0.05

LOW IDLE

control lever
position degree : 64.0
tolerance degree : + - 4.0

control lever
position degree : 12.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.10

Testing:

Rated speed rpm : 250
rack travel mm : 4.90
Tolerance mm : + - 0.10

Rated speed rpm : 330

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.90
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 500

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.90
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spread

Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 827

Injection pump
Pump designation : PE6P120A320RS3178
EP type number : 0 411 826 752

Governor
Governor design. : RQV250...950PA921-3
Governor no. : 0 421 813 786

Cust. part No. :

Customer-spec. information

Customer : VOLVO
Motor : TD122F
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm3/1000 strokes : 230.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : + - 0.10

Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 strokes : + - 2.5

Check tolerance cm³/1000S. : + - 5.5

Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 985
guide sleeve travel mm : 8.20
Tolerance mm : + - 0.10

Rated speed rpm : 250
guide sleeve travel mm : 1.20
Tolerance mm : + - 0.20

Rated speed rpm : 450
guide sleeve travel mm : 3.90
Tolerance mm : + - 0.30

Rated speed rpm : 700
guide sleeve travel mm : 6.50
Tolerance mm : + - 0.20

Rated speed rpm : 1060
guide sleeve travel mm : 9.60
Tolerance mm : + - 0.20

GUIDE SLEEVE POSITION

control lever position degree : - 1

Rated speed rpm : 1030

Rack travel in mm : 16.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure hPa : 900
Del. quantity cm³/1000 strokes : 230.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

CONTROL LEVER

control lever position degree : 120.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 985
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1200

LOW IDLE

control lever position degree : 64.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.20

Testing:

Rated speed rpm : 250
 rack travel mm : 4.70
 Tolerance mm : + - 0.10

Rated speed rpm : 315

ANEROID/ALTITUDE COMPENSATOR TEST**SETTING**

Rated speed rpm : 500
 Pressure hPa : 900
 rack travel mm : 13.05
 Tolerance mm : + - 0.05

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 10.10
 Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
 rack travel mm : 2.60
 Tolerance mm : + - 0.10

Pressure hPa : 90
 rack travel mm : 0.25
 Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 164.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 20.50
 Tolerance mm : + - 0.50

Del. quantity
 cm³/1000 strokes : 290.0
 Tolerance
 cm³/1000 strokes : + - 20.0
 Check tolerance
 cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70
 Tolerance mm : + - 0.10

Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : + - 2.5
 Check tolerance
 cm³/1000S. : + - 5.5
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 991

Injection pump
Pump designation : PE6P110A320RS3108-1
EP type number : 0 411 816 757

Governor
Governor design. : RQV250...1100PA920
: -10
Governor no. : 0 421 814 106

Cust. part No. : 425823 P02 RELEASED

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : THD 102 KB
Power KW : 212.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.30
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 191.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 250
 Rack travel in mm : 5.70
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 4.5
 Spred
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146
 guide sleeve
 travel mm : 7.81
 Tolerance mm : + - 0.25
 Rated speed rpm : 250
 guide sleeve
 travel mm : 1.19
 Tolerance mm : + - 0.25
 Rated speed rpm : 1081
 guide sleeve
 travel mm : 6.83
 Tolerance mm : + - 0.25
 Rated speed rpm : 387
 guide sleeve
 travel mm : 2.96

Tolerance mm : + - 0.25
 Rated speed rpm : 437
 guide sleeve
 travel mm : 3.71
 Tolerance mm : + - 0.25
 Rated speed rpm : 520
 guide sleeve
 travel mm : 4.67
 Tolerance mm : + - 0.25
 Rated speed rpm : 1370
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1175
 Rack travel in mm : 16.50
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 191.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : + - 4.0

control lever
 position degree : 120.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 13.30

Rated speed rpm	:	1135
Tolerance 1/min	:	+/- 5
rack travel mm	:	4.00
Rated speed rpm	:	1240
Tolerance 1/min	:	+/- 15
rack travel mm	:	0.50
Tolerance mm	:	+/- 0.50
Rated speed rpm	:	1350

LOW IDLE

control lever		
position degree	:	66.0
tolerance degree	:	+/- 4.0

control lever		
position degree	:	11.0
tolerance degree	:	+/- 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.70

Testing:

Rated speed rpm	:	250
rack travel mm	:	5.70
Tolerance mm	:	+/- 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm	:	700
rack travel mm	:	14.30
Tolerance mm	:	+/- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	14.30
Tolerance mm	:	+/- 0.05

Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	10.15

Tolerance mm	:	+/- 0.15
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MEASUREMENT

Rated speed rpm : 500

Pressure hPa	:	960
rack travel mm	:	3.80
Tolerance mm	:	+/- 0.15

Pressure hPa	:	240
rack travel mm	:	0.25
Tolerance mm	:	+/- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	700
Del. quantity		
cm ³ /1000 strokes	:	113.0
Tolerance		
cm ³ /1000 strokes	:	+/- 1.0
Check tolerance		
cm ³ /1000S.	:	+/- 4.0

LOW IDLE

Rated speed rpm	:	250
Rack travel in mm	:	5.70
Tolerance mm	:	+/- 0.10
Del. quantity		
cm ³ /1000 strokes	:	32.0
Tolerance		
cm ³ /1000 strokes	:	+/- 2.0
Check tolerance		
cm ³ /1000S.	:	+/- 4.5
Spread		
Tolerance		
cm ³ /1000 strokes	:	3.0
Check tolerance		
cm ³ /1000S.	:	6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.10.98
Test oil : ISO 4113

Combination No. : 0 402 086 705

Injection pump
Pump designation : PES6P100B321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125POA698
Governor no. : 0 421 833 624

Cust. part No. : 51.11103-7606

Customer-spec. information

Customer : MAN
Motor : D0826 LE527
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 13.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 13.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 166.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure hPa : 1500

Del. quantity
cm³/1000 strokes : 166.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1175
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1265
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.30
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 1125
rack travel mm : 13.10
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 13.80
Tolerance mm : + - 0.10

Rated speed rpm : 1000
rack travel mm : 13.70
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.70
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 150
rack travel mm : 10.00
Tolerance mm : + - 0.05

Pressure hPa : 800
rack travel mm : 13.20
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 146.5
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
rack travel mm : 13.80
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 179.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 93.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : + - 0.20
Del. quantity
cm3/1000 strokes : 112.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.80
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.98
Test oil : ISO 4113

Combination No. : 0 402 646 672

Injection pump
Pump designation : PE6P120A320RS7421
EP type number : 0 412 626 956

Governor
Governer design. : RQV275...1150PA1298K
Governer no. : 0 421 815 525

Cust. part No. : 1316185/1

Customer-spec. information

Customer : DAF
Motor : PF 183 M
Power KW : 183.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 15.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 10.06

Tolerance mm : + - 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.71

Tolerance mm : + - 0.20

Rated speed rpm : 811
guide sleeve
travel mm : 6.79

Tolerance mm : + - 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 3.85
Tolerance mm : + - 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1343

Rack travel in mm : 9.80
Tolerance mm : + - 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 10.05
Rated speed rpm : 1190

Tolerance 1/min : + - 5
Check
speed 1/min : + - 10

rack travel mm : 4.00
Rated speed rpm : 1285

Tolerance 1/min : + - 15
Check
speed 1/min : + - 20

rack travel mm : 0.70

Tolerance mm : \pm 0.70
Rated speed rpm : 1450

LOW IDLE

control lever position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 275
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 11.05
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.15
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.15
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 10.45
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 9.55
Tolerance mm : \pm 0.10

Rated speed rpm : 1150
rack travel mm : 11.05
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 11.35
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875
Pressure hPa : 400
rack travel mm : 10.50
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 9.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 11.15
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0

Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 4.90
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 15.10.98
Test oil : ISO 4113

Combination No. : 0 402 946 031

Injection pump
Pump designation : PES6P120A320RS8050
EP type number : 0 412 926 032

Governor
Governer design. : RQ250/1000PA1342
Governer no. : 0 421 801 822

Cust. part No. : 1388694

Customer-spec. information

Customer : SCANIA
Motor : DSI 9E01
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 095

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 80
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.50
 Tolerance mm : \pm 0.05

 Del. quantity cm³/1000 strokes : 244.0

 Tolerance cm³/1000 strokes : \pm 1.0

 Check tolerance cm³/1000S. : \pm 7.0

 Spread

 Tolerance cm³/1000 strokes : 8.0

 Check tolerance cm³/1000S. : 12.0

 Rated speed rpm : 300

 Rack travel in mm : 5.60
 Tolerance mm : \pm 0.10
 Del. quantity cm³/1000 strokes : 38.0

 Tolerance cm³/1000 strokes : \pm 3.0

 Check tolerance cm³/1000S. : \pm 6.0

 Spread

 Tolerance cm³/1000 strokes : 5.0

 Check tolerance cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1061
 guide sleeve
 travel mm : 4.72
 Tolerance mm : \pm 0.15

 Rated speed rpm : 285
 guide sleeve
 travel mm : 2.17
 Tolerance mm : \pm 0.20

 Rated speed rpm : 1000
 guide sleeve
 travel mm : 4.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 410
 guide sleeve
 travel mm : 3.50
 Tolerance mm : \pm 0.10

 Rated speed rpm : 530
 guide sleeve
 travel mm : 4.50
 Tolerance mm : \pm 0.10

 Rated speed rpm : 1670
 guide sleeve
 travel mm : 11.50
 Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : 108
 Rated speed rpm : 600

 Rack travel in mm : 16.00
 Tolerance mm : \pm 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 244.0

 Tolerance cm³/1000 strokes : \pm 1.0

 Check tolerance cm³/1000S. : \pm 7.0

 Spread

 Tolerance cm³/1000 strokes : 8.0

 Check tolerance cm³/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 43.0
 tolerance degree : \pm 4.0

 control lever
 position degree : 105.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 11.50
 Rated speed rpm : 1060

Tolerance 1/min	: +-	5
Check speed 1/min	: +-	10
rack travel mm	:	4.00
Rated speed rpm	:	1247
Tolerance 1/min	: +-	15
Check speed 1/min	: +-	20
rack travel mm	:	0.50
Tolerance mm	: +-	0.50
Rated speed rpm	:	1350

LOW IDLE

control lever position degree	:	85.0
tolerance degree	: +-	4.0

control lever position degree	:	21.0
tolerance degree	: +-	4.0

Setting point w/out bumper spring

Rated speed rpm	:	150
CRT mm min.	: >	8.00

Testing:

Rated speed rpm	:	300
rack travel mm	:	5.60
Tolerance mm	: +-	0.10
rack travel mm	: <	2.00
Rated speed rpm	:	390
Tolerance 1/min	: +-	20

TORQUE CONTROL

Rated speed rpm	:	700
rack travel mm	:	12.50
Tolerance mm	: +-	0.05

Rated speed rpm	:	1000
rack travel mm	:	12.50
Tolerance mm	: +-	0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

B02

Rated speed rpm	:	500
Pressure hPa	:	1500
rack travel mm	:	12.30
Tolerance mm	: +-	0.05

Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	10.40
Tolerance mm	: +-	0.20

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	275
rack travel mm	:	10.90
Tolerance mm	: +-	0.15
Pressure hPa	:	425
rack travel mm	:	12.10
Tolerance mm	: +-	0.05

Start interlock

Rated speed rpm	: >	100
Rated speed rpm	: <	170
Check speed 1/min	: >	80
Check speed 1/min	: <	190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	1500
Rated speed rpm	:	1000
Del. quantity cm ³ /1000 strokes	:	217.0
Tolerance cm ³ /1000 strokes	: +-	4.0
Check tolerance cm ³ /1000S.	: +-	6.0

Aneroid pressure hPa	:	-
Rated speed rpm	:	500
Del. quantity cm ³ /1000 strokes	:	210.0
Tolerance cm ³ /1000 strokes	: +-	1.0
Check tolerance cm ³ /1000S.	: +-	4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 400 866 208AA

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025

Governor
Governor design. : RSV400...1100A0C2190
: -80R
Governor no. : 0 420 233 319

Cust. part No. : 3921143

Customer-spec. information

Customer : CDC
Motor : 6 CT/173Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : + 1.0
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : 10.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.60
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 124.5

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.5

Spread

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.60

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 124.5

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.5

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.65
Rated speed rpm : 1145
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + - 15

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1355

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : + - 15

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.60
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.60
Tolerance mm : + - 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + - 1.00
Del. quantity
cm³/1000 strokes : 147.5
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.60
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.98
Test oil : ISO 4113

Combination No. : 0 400 876 425

Injection pump
Pump designation : PES6A95D410RS2864
EP type number : 0 410 896 888

Governor
Governor design. : RSV400...1050A2C2263
: -7L
Governor no. : 0 420 232 606

Cust. part No. : 87 801 601

Customer-spec. information

Customer : NH
Motor : 7.5 L
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet Line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 151.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

Rated speed rpm : 650
 Rack travel in mm : 4.50
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 4.5
 Speed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

Rack travel in mm : 0.50
 Tolerance mm : + - 0.20

governor spring
 pre-tension
 click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 151.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.0
 Speed
 Tolerance
 cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 92.0
 tolerance degree : + - 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1078
 rack travel mm : 11.70
 Rated speed rpm : 1105
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1250

Rated speed rpm : 1079
 rack travel mm : 11.70

Rated speed rpm : 1106
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1250

Rated speed rpm : 1080
 rack travel mm : 11.70

Rated speed rpm : 1107
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1250

Rated speed rpm : 1081
 rack travel mm : 11.70

Rated speed rpm : 1108
 Tolerance 1/min : + - 5
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1250

Rated speed rpm	:	1082		rack travel mm	:	11.90
rack travel mm	:	11.70		Tolerance mm	:	+/- 0.05
Rated speed rpm	:	1109		Rated speed rpm	:	1030
Tolerance 1/min	:	+/- 5		rack travel mm	:	12.70
rack travel mm	:	4.00		Tolerance mm	:	+/- 0.10
rack travel mm	:	0.85		Rated speed rpm	:	950
Tolerance mm	:	+/- 0.55		rack travel mm	:	13.35
Rated speed rpm	:	1250		Tolerance mm	:	+/- 0.10

Rated speed rpm	:	1083	
rack travel mm	:	11.70	
Rated speed rpm	:	1110	
Tolerance 1/min	:	+/- 5	
rack travel mm	:	4.00	
rack travel mm	:	0.85	
Tolerance mm	:	+/- 0.55	
Rated speed rpm	:	1250	

LOW IDLE

control lever		
position degree	:	74.0
tolerance degree	:	+/- 4.0
Setting point w/out bumper spring		
Rated speed rpm	:	650
rack travel mm	:	4.00
Tolerance mm	:	+/- 0.10
Testing:		
Rated speed rpm	:	650
rack travel mm	:	4.50
Tolerance mm	:	+/- 0.10
rack travel mm	:	2.00
Rated speed rpm	:	740
Tolerance 1/min	:	+/- 30

TORQUE CONTROL		
Rated speed rpm	:	800
rack travel mm	:	14.10
Tolerance mm	:	+/- 0.10
Rated speed rpm	:	500
rack travel mm	:	14.15
Tolerance mm	:	+/- 0.10
Rated speed rpm	:	1030

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
Pressure hPa	:	1200
rack travel mm	:	14.15
Tolerance mm	:	+/- 0.10
Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	7.80
Tolerance mm	:	+/- 0.05

MEASUREMENT

Rated speed rpm	:	500
Pressure hPa	:	775
rack travel mm	:	13.50
Tolerance mm	:	+/- 0.05
Pressure hPa	:	520
rack travel mm	:	11.10
Tolerance mm	:	+/- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure	:	
hPa	:	-
Rated speed rpm	:	500
Del. quantity	:	
cm ³ /1000 strokes	:	70.5
Tolerance	:	
cm ³ /1000 strokes	:	+/- 1.0
Check tolerance	:	
cm ³ /1000S.	:	+/- 3.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
-----------------	---	-----

rack travel mm : 20.00
Tolerance mm : + - 0.20
Del. quantity
cm3/1000 strokes : 160.0
Tolerance
cm3/1000 strokes : + - 8.0
Check tolerance
cm3/1000S. : + - 11.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.50
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 4.5
Speed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.10.98
Test oil : ISO 4113

Combination No. : F 002 A02 120

Injection pump
Pump designation : PES3A90D410RS2955
EP type number : F 002 A10 041

Governor
Governor design. : RSV300...1000A2B2281
: L
Governor no. : 9 420 034 610

Cust. part No. : Escorts Tractors

Customer-spec. information

Motor : F3-315
Power KW : 37.2

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-2-3- _

Phasing : 0-120-240
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.20
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 60.0

Tolerance cm³/1000 strokes : + 0.5

Check tolerance cm³/1000S. : + 2.5

Spread

Tolerance cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 300
Tolerance mm : + - 0.10
Del. quantity cm³/1000 strokes : 15.0
Tolerance cm³/1000 strokes : + - 1.5
Check tolerance cm³/1000S. : + - 3.0
Spred
Tolerance cm³/1000 strokes : 2.0
Check tolerance cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : FREE

governor spring pre-tension click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure hPa : -
Del. quantity cm³/1000 strokes : 60.0
Tolerance cm³/1000 strokes : + - 0.5
Check tolerance cm³/1000S. : + - 2.5
Spred
Tolerance cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 4.0

CONTROL LEVER

control lever position degree : 95.0

tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1090
Tolerance 1/min : + - 5

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : + - 15

LOW IDLE

control lever position degree : 72.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 300
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.20
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 49.5
Tolerance cm³/1000 strokes : + - 1.5
Check tolerance cm³/1000S. : + - 3.0

Spred
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 6.0

Aneroid pressure
hPa : -
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 3.5
Spred
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + - 0.25
Tolerance
cm³/1000 strokes : + - 7.5
Check tolerance
cm³/1000S. : + - 10.0

LOW IDLE

Rated speed rpm : 300
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 403 466 183DA

Injection pump
Pump designation : PES6MW100/120RS1247
EP type number : 0 413 406 248

Governor
Governor design. : RSV550...1100MW5A415
Governor no. : 0 420 085 306

Cust. part No. : 3935489

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack travel : 15.00
Difference ° CS : 1.50

BASIC SETTINGRated speed rpm : 1100

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
Tolerancecm³/1000 strokes : \pm 2.0
Check tolerancecm³/1000S. : \pm 4.5
SpreadTolerance
cm³/1000 strokes : 3.5
Check tolerancecm³/1000S. : 5.5**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE POSITIONcontrol lever
position degree : - 3
Rated speed rpm : 800Rack travel in mm : 0.50
Tolerance mm : \pm 0.20governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOPRated speed rpm : 1100
Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 163.0Tolerance
cm³/1000 strokes : \pm 1.0Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 7.5

CONTROL LEVERcontrol lever
position degree : 104.0
tolerance degree : \pm 4.0**RATED SPEED**rack travel mm : 12.20
Rated speed rpm : 1170Tolerance 1/min : \pm 5
Checkspeed 1/min : \pm 10rack travel mm : 4.00
Rated speed rpm : 1255Tolerance 1/min : \pm 5
Checkspeed 1/min : \pm 10rack travel mm : 1.00
Tolerance mm : \pm 0.70

Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1265Tolerance 1/min : \pm 15
Checkspeed 1/min : \pm 20

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 26.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.55
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.55
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.55
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.30

Tolerance mm : \pm 0.20
Pressure hPa : 560
rack travel mm : 11.80
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 170.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.10.98
Test oil : ISO 4113

Combination No. : F 002 A02 057CB

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1250A0C936R
Governor no. : F 002 A20 241

Cust. part No. : 3934890

Customer-spec. information

Customer : CDC
Motor : 4BNA3.9
Power KW : 59.7

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 10.25
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.0

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.00
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.20
Rated speed rpm : 1340
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : + - 5

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1475

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : + - 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + - 4.0

Control lever difference
Grad : 21.0
tolerance degree : + - 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.50
Tolerance mm : + - 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.20
Tolerance mm : + - 0.05

Rated speed rpm : 600

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spred
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.98
Test oil : ISO 4113

Combination No. : 0 401 876 810

Injection pump
Pump designation : PE6P120A320RS3359
EP type number : 0 411 826 815

Governor
Governor design. : RSV325...1200P1A615
Governor no. : 0 421 833 503

Cust. part No. : 3825515 P02 v. 10/95

Customer-spec. information

Customer : PENTA
Motor : TD 730ME
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.35
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 9.40
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.00
 Tolerance mm : \pm 0.05

 Del. quantity,
cm³/1000 strokes : 123.0

 Tolerance
cm³/1000 strokes : \pm 1.0

 Check tolerance
cm³/1000S. : \pm 4.0

 Spred

 Tolerance
cm³/1000 strokes : 7.0

 Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

 Rack travel in mm : 4.60
 Tolerance mm : \pm 0.10
 Del. quantity
cm³/1000 strokes : 25.0
 Tolerance
cm³/1000 strokes : \pm 2.5
 Check tolerance
cm³/1000S. : \pm 5.0
 Spred

 Tolerance
cm³/1000 strokes : 3.0
 Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20

 governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
hPa : 1500
 Del. quantity
cm³/1000 strokes : 123.0
 Tolerance
cm³/1000 strokes : \pm 1.0
 Check tolerance
cm³/1000S. : \pm 4.0
 Spred

 Tolerance
cm³/1000 strokes : 7.0
 Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 70.0
 tolerance degree : \pm 4.0

 control lever
position degree : 120.0
 tolerance degree : \pm 4.0

RATED SPEED
 rack travel mm : 10.00
 Rated speed rpm : 1235
 Tolerance 1/min : \pm 5

 rack travel mm : 4.00
 Rated speed rpm : 1280
 Tolerance 1/min : \pm 15

 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 80.0
 tolerance degree : \pm 4.0

 control lever
position degree : 30.0
 tolerance degree : \pm 4.0

 Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 4.10
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 4.60
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.00
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 11.00
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.00
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 490
rack travel mm : 1.10
Tolerance mm : + - 0.15

Pressure hPa : 290
rack travel mm : 0.25
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 141.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 95.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.60
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : + - 2.5
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 036 745

Injection pump
Pump designation : PES6P110A720/3LS3131
: -3
EP type number : 0 412 016 734

Governor
Governor design. : RQ300/1100PA722-1
Governor no. : 0 421 801 461

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM447
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.35
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.50
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(E) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159
guide sleeve

travel mm : 7.65
Tolerance mm : + - 0.15

Rated speed rpm : 300
guide sleeve

travel mm : 1.65
Tolerance mm : + - 0.20

Rated speed rpm : 1100
guide sleeve

travel mm : 7.00
Tolerance mm : + - 0.10

Rated speed rpm : 396

guide sleeve
travel mm : 5.74
Tolerance mm : + - 0.10

Rated speed rpm : 470
guide sleeve
travel mm : 7.00
Tolerance mm : + - 0.10

Rated speed rpm : 1260
guide sleeve
travel mm : 11.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 600

Rack travel in mm : 13.00
Tolerance mm : + - 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : -
Del. quantity

cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 9.50

Rated speed rpm : 1153
Tolerance 1/min : + - 8

rack travel mm : 4.00
Rated speed rpm : 1190

Tolerance 1/min : + - 15

rack travel mm : 0.75
Tolerance mm : + - 0.75
Rated speed rpm : 1300

LOW IDLE

control lever position degree : 78.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.30
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 388
Tolerance 1/min : + - 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.50
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 10.50
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.30
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 036 745H

Injection pump
Pump designation : PES6P110A720/3LS3131
: -3
EP type number : 0 412 016 734

Governor
Governor design. : RQ300/1100PA722-1
Governor no. : 0 421 801 461

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM447
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.35
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.50
Tolerance mm : + 0.05

Det. quantity cm³/1000 strokes : 117.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 8.0
 Rated speed rpm : 300
 Rack travel in mm : 7.30
 Tolerance mm : + - 0.10
 Det. quantity cm³/1000 strokes : 17.0
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 6.0
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1157
 guide sleeve travel mm : 7.44
 Tolerance mm : + - 0.15
 Rated speed rpm : 300
 guide sleeve travel mm : 1.59
 Tolerance mm : + - 0.20
 Rated speed rpm : 1100
 guide sleeve travel mm : 7.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 396

guide sleeve travel mm : 5.70
 Tolerance mm : + - 0.10

Rated speed rpm : 470
 guide sleeve travel mm : 7.00
 Tolerance mm : + - 0.10

Rated speed rpm : 1260
 guide sleeve travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever position degree : - 1
 Rated speed rpm : 600

Rack travel in mm : 13.00
 Tolerance mm : + - 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 117.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 8.0

CONTROL LEVER

control lever position degree : 102.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 9.50
 Rated speed rpm : 1153
 Tolerance 1/min : + - 8

rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + - 15

rack travel mm : 0.75
Tolerance mm : + - 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 8.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.30
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 388
Tolerance 1/min : + - 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.50
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 10.50
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 88.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 076 748

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A2
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 175
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 990

Rack travel in mm : 12.00

Tolerance mm : \pm 0.05
 Del. quantity cm³/1000 strokes : 180.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 3.5
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 7.5

Rated speed rpm : 400
 Rack travel in mm : 4.00
 Tolerance mm : \pm 0.10
 Del. quantity cm³/1000 strokes : 26.0
 Tolerance cm³/1000 strokes : \pm 3.0
 Check tolerance cm³/1000S. : \pm 5.5
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20
 governor spring pre-tension
 click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 990
 Aneroid pressure hPa : 1300
 Del. quantity cm³/1000 strokes : 180.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 3.5
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 104.0
 tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1027
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00
 Rated speed rpm : 1081
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1028
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00

Rated speed rpm : 1082
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1029
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00

Rated speed rpm : 1083
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1030
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1084
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1031
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1085
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1032
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1086
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.50
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.00
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : + - 30

TORQUE CONTROL
Rated speed rpm : 990
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 12.00
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1300
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 700
rack travel mm : 11.50
Tolerance mm : + - 0.05

Pressure hPa : 645
rack travel mm : 11.00
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 205.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.5
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 076 748I

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9880883

Customer-spec. information

Customer : LIEBHERR
Motor : D 926 TI-E A2
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 175
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 990

Rack travel in mm : 12.00

Tolerance mm : \pm 0.05
 Del. quantity cm³/1000 strokes : 180.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 3.5
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.00
 Tolerance mm : \pm 0.10
 Del. quantity cm³/1000 strokes : 26.0
 Tolerance cm³/1000 strokes : \pm 3.0
 Check tolerance cm³/1000S. : \pm 5.5
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20
 governor spring pre-tension click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 990
 Aneroid pressure hPa : 1300
 Del. quantity cm³/1000 strokes : 180.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 3.5
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 7.5

CONTROL LEVER

control lever position degree : 104.0
 tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1027
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00
 Rated speed rpm : 1081
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1028
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00

Rated speed rpm : 1082
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1300

Rated speed rpm : 1029
 Tolerance 1/min : \pm 1
 rack travel mm : 11.00

Rated speed rpm : 1083
 Tolerance 1/min : \pm 4
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1030
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1084
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1031
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1085
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

Rated speed rpm : 1032
Tolerance 1/min : + - 1
rack travel mm : 11.00

Rated speed rpm : 1086
Tolerance 1/min : + - 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + - 4.0

Setting point w/cut bumper spring

Rated speed rpm : 400
rack travel mm : 3.50
Tolerance mm : + - 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.00
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 990
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 12.00
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1300
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 700
rack travel mm : 11.50
Tolerance mm : + - 0.05

Pressure hPa : 645
rack travel mm : 11.00
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1300
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 205.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.00
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 076 822

Injection pump
Pump designation : PES6P110A320RS3400
EP type number : 0 412 016 759

Governor
Governor design. : RSV300...1000P1A695
Governor no. : 0 421 833 618

Cust. part No. : 11032943 v. 25.02.98

Customer-spec. information

Customer : VCE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 190
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 131.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 8.70
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1162
 guide sleeve
 travel mm : 8.57
 Tolerance mm : + - 0.15
 Rated speed rpm : 315
 guide sleeve
 travel mm : 1.61
 Tolerance mm : + - 0.20
 Rated speed rpm : 818
 guide sleeve
 travel mm : 5.37
 Tolerance mm : + - 0.25
 Rated speed rpm : 510
 guide sleeve
 travel mm : 3.11

Tolerance mm : + - 0.25
 Rated speed rpm : 1390
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 governor spring
 pre-tension
 click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 131.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 106.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 12.30
 Rated speed rpm : 1022
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1075
 Tolerance 1/min : + - 10
 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 8.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 370
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.30
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 700
Pressure hPa : -
rack travel mm : 10.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 700
Pressure hPa : 660
rack travel mm : 2.00
Tolerance mm : \pm 0.20

Pressure hPa : 110
rack travel mm : 0.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 8.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 086 704

Injection pump
Pump designation : PES6P100B321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125POA699
Governor no. : 0 421 833 625

Cust. part No. : 51.11103-7607

Customer-spec. information

Customer : MAN
Motor : D0826 LE531
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.10
 Tolerance mm : \pm 0.05
 Del. quantity cm³/1000 strokes : 174.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 4.0
 Rated speed rpm : 400
 Rack travel in mm : 4.90
 Tolerance mm : \pm 0.10
 Del. quantity cm³/1000 strokes : 25.0
 Tolerance cm³/1000 strokes : \pm 3.0
 Check tolerance cm³/1000S. : \pm 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800

Rack travel in mm : 0.50
 Tolerance mm : \pm 0.20

governor spring pre-tension
 click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 174.0
 Tolerance cm³/1000 strokes : \pm 1.0
 Check tolerance cm³/1000S. : \pm 4.0

CONTROL LEVER

control lever position degree : 104.0
 tolerance degree : \pm 4.0
 RATED SPEED
 rack travel mm : 12.60
 Rated speed rpm : 1175
 Tolerance 1/min : \pm 5
 rack travel mm : 4.00
 Rated speed rpm : 1265
 Tolerance 1/min : \pm 15
 rack travel mm : 0.85
 Tolerance mm : \pm 0.55
 Rated speed rpm : 1400
 rack travel mm : 4.00
 Rated speed rpm : 1270
 Tolerance 1/min : \pm 15

LOW IDLE

control lever position degree : 80.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 4.40
 Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
 rack travel mm : 4.90
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 500
 Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 925
 rack travel mm : 14.10
 Tolerance mm : \pm 0.05
 Rated speed rpm : 1125
 rack travel mm : 13.60
 Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 8.10
Tolerance mm : + - 0.10

Rated speed rpm : 1025
rack travel mm : 13.95
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : + - 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.45
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 150
rack travel mm : 9.75
Tolerance mm : + - 0.05

Pressure hPa : 800
rack travel mm : 13.05
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 161.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : 1500

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 187.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 91.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.45
Tolerance mm : + - 0.45
Del. quantity
cm3/1000 strokes : 112.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.90
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 086 705

Injection pump
Pump designation : PES6P100B321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125P0A698
Governor no. : 0 421 833 624

Cust. part No. : 51.11103-7606

Customer-spec. information

Customer : MAN
Motor : D0826 LE527
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 13.80
 Tolerance mm : + 0.05
 Del. quantity cm³/1000 strokes : 166.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Rated speed rpm : 400
 Rack travel in mm : 4.80
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 25.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring pre-tension click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 166.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0

CONTROL LEVER

control lever position degree : 101.0
 tolerance degree : + 4.0
 RATED SPEED
 rack travel mm : 12.10
 Rated speed rpm : 1175
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1260
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1400
 rack travel mm : 4.00
 Rated speed rpm : 1265
 Tolerance 1/min : + 15

LOW IDLE

control lever position degree : 77.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 400
 rack travel mm : 4.30
 Tolerance mm : + 0.10
 Testing:
 Rated speed rpm : 400
 rack travel mm : 4.80
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 500
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 925
 rack travel mm : 13.80
 Tolerance mm : + 0.05
 Rated speed rpm : 1125
 rack travel mm : 13.10
 Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.80
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 8.10
Tolerance mm : + - 0.10

Rated speed rpm : 1000
rack travel mm : 13.70
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : + - 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.70
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 150
rack travel mm : 10.00
Tolerance mm : + - 0.05

Pressure hPa : 800
rack travel mm : 13.20
Tolerance mm : + - 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 146.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : 1500

Rated speed rpm : 700
rack travel mm : 13.80
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 179.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.50
Tolerance mm : + - 0.20
Del. quantity
cm³/1000 strokes : 112.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.80
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.98
Test oil : ISO 4113

Combination No. : 0 402 616 803

Injection pump
Pump designation : PE6P130A300RS7274
EP type number : 0 412 636 824

Governor
Governor design. :
Governor no. :

Cust. part No. : 866146-P03 v. 10.94

Customer-spec. information

Customer : PENTA
Motor : TAD1230G(GENSET)

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.90
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.90

Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 400.0
 Tolerance cm³/1000 strokes : + 1.5
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

 Rated speed rpm : 300
 Rack travel in mm : 4.00
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 23.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 400.0
 Tolerance cm³/1000 strokes : + 1.5
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

LOW IDLE

Testing:

Rated speed rpm	:	300
rack travel mm	:	4.00
Tolerance mm	:	+ 0.30

TORQUE CONTROL

Rated speed rpm	:	700
rack travel mm	:	12.90
Tolerance mm	:	+ 0.10

LOW IDLE

Rated speed rpm	:	300
Rack travel in mm	:	4.00
Tolerance mm	:	+ 0.30
Del. quantity cm ³ /1000 strokes	:	23.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 6.0
Spread		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.98
Test oil : ISO 4113

Combination No. : 0 402 619 801

Injection pump
Pump designation : PE10P120A500LS7934
EP type number : 0 412 629 814

Governor
Governor design. :
Governor no. :

Cust. part No. : 51.11103-7420

Customer-spec. information

Customer : MAN
Motor : D2840LE*
Power KW : 515.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Firing order : 10- 9- 4- 1- 8
: - 7- 6- 3- 5
: - 2

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 10

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance : \pm 4.0

Spred

Tolerance : 5.0

Check tolerance : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity : 115.0

Tolerance : \pm 3.0

Check tolerance : \pm 6.0

Spred

Tolerance : 14.0

Check tolerance : 19.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure : -

Del. quantity : 340.0

Tolerance : \pm 1.0

Check tolerance : \pm 4.0

Spred

Tolerance : 5.0

Check tolerance : 9.0

LOW IDLE

Testing:

Rated speed rpm : 300
rack travel mm : 7.00

Tolerance mm : \pm 0.10

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 12.60
Tolerance mm : \pm 0.05

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : \pm 0.10

Del. quantity : 115.0

Tolerance : \pm 3.0

Check tolerance : \pm 6.0

Spred

Tolerance : 14.0

Check tolerance : 19.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 646 658

Injection pump
Pump designation : PE6P130A720RS7371
EP type number : 0 412 636 837

Governor
Governor design. : RQV250...900PA1215
Governor no. : 0 421 814 139

Cust. part No. : 3825482-P05 V.05.98

Customer-spec. information

Customer : PENTA
Motor : TAMD 163 A
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 60
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.60
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.20
Tolerance mm : + - 0.05

Del. quantity cm³/1000 strokes : 377.0

Tolerance cm³/1000 strokes : + - 1.5

Check tolerance cm³/1000S. : + - 5.0

Spred

Tolerance cm³/1000 strokes : 9.0

Check tolerance cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 5.00
Tolerance mm : + - 0.10

Del. quantity cm³/1000 strokes : 25.0

Tolerance cm³/1000 strokes : + - 3.0

Check tolerance cm³/1000S. : + - 6.0

Spred

Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 959

guide sleeve
travel mm : 8.22
Tolerance mm : + - 0.25

Rated speed rpm : 250

guide sleeve
travel mm : 1.12
Tolerance mm : + - 0.25

Rated speed rpm : 315

guide sleeve
travel mm : 1.98
Tolerance mm : + - 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.47
Tolerance mm : + - 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.40
Tolerance mm : + - 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 11.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1030

Rack travel in mm : 11.00
Tolerance mm : + - 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 377.0

Tolerance
cm³/1000 strokes : + - 1.5

Check tolerance
cm³/1000S. : + - 5.0

Spred
Tolerance
cm³/1000 strokes : 9.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : + - 4.0

control lever
position degree : 118.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm	:	12.20
Rated speed rpm	:	930
Tolerance 1/min	:	+/- 5

rack travel mm	:	4.00
Rated speed rpm	:	1020
Tolerance 1/min	:	+/- 15

rack travel mm	:	0.50
Tolerance mm	:	+/- 0.50
Rated speed rpm	:	1100

LOW IDLE

control lever		
position degree	:	68.0
tolerance degree	:	+/- 4.0

control lever		
position degree	:	15.0
tolerance degree	:	+/- 4.0

Setting point w/out bumper spring

Rated speed rpm	:	150
CRT mm min.	:	> 6.50

Testing:

Rated speed rpm	:	250
rack travel mm	:	5.00
Tolerance mm	:	+/- 0.10

Rated speed rpm	:	350
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TORQUE CONTROL

Rated speed rpm	:	900
rack travel mm	:	13.20
Tolerance mm	:	+/- 0.05

Rated speed rpm	:	700
rack travel mm	:	13.20
Tolerance mm	:	+/- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	500
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Pressure hPa	:	1500
rack travel mm	:	13.20
Tolerance mm	:	+/- 0.05

Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	7.60
Tolerance mm	:	+/- 0.20

MEASUREMENT

Rated speed rpm	:	500
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Pressure hPa	:	910
rack travel mm	:	5.20
Tolerance mm	:	+/- 0.30

Pressure hPa	:	190
rack travel mm	:	0.25
Tolerance mm	:	+/- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	1500
Rated speed rpm	:	700
Del. quantity		
cm ³ /1000 strokes	:	406.0
Tolerance		
cm ³ /1000 strokes	:	+/- 3.0
Check tolerance		
cm ³ /1000S.	:	+/- 6.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	700
Del. quantity		
cm ³ /1000 strokes	:	194.0
Tolerance		
cm ³ /1000 strokes	:	+/- 1.5
Check tolerance		
cm ³ /1000S.	:	+/- 5.0

LOW IDLE

Rated speed rpm	:	250
Rack travel in mm	:	5.00
Tolerance mm	:	+/- 0.10
Del. quantity		
cm ³ /1000 strokes	:	25.0

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 646 762

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governer design. : RQV300...1050PA1033
: -18
Governer no. : 0 421 814 136

Cust. part No. : 0260743602

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000L strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108

guide sleeve
travel mm : 8.53

Tolerance mm : + 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.29

Tolerance mm : + 0.20

Rated speed rpm : 558

guide sleeve
travel mm : 4.53

Tolerance mm : + 0.25

Rated speed rpm : 608

guide sleeve
travel mm : 5.03

Tolerance mm : + - 0.25

Rated speed rpm : 820

guide sleeve
travel mm : 6.13

Tolerance mm : + - 0.25

Rated speed rpm : 1183

guide sleeve
travel mm : 10.00

Tolerance mm : + - 0.25

Rated speed rpm : 1280

guide sleeve
travel mm : 11.50

Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1145

Rack travel in mm : 13.80

Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0

tolerance degree : + - 4.0

RATED SPEED

rack travel mm : 13.80

Rated speed rpm : 1095

Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 400

Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 140
Rated speed rpm : < 220

Check
speed 1/min : > 120
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 226.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 14.80
Tolerance mm : + 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.20
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 648 932

Injection pump
Pump designation : PE8P120A320LS7849
EP type number : 0 412 628 864

Governor
Governor design. : RQV300...1050PA1034
Governor no. : 0 421 813 993

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 9308 TI
Power KW : 360.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spread _____

Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 350
 Rack travel in mm : 5.30
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 21.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 780
 guide sleeve
 travel mm : 6.60
 Tolerance mm : ± 0.30
 Rated speed rpm : 350
 guide sleeve
 travel mm : 1.90
 Tolerance mm : ± 0.20
 Rated speed rpm : 405
 guide sleeve
 travel mm : 2.65
 Tolerance mm : ± 0.25
 Rated speed rpm : 550
 guide sleeve
 travel mm : 4.40
 Tolerance mm : ± 0.20
 Rated speed rpm : 1118
 guide sleeve
 travel mm : 10.50
 Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1185
 Rack travel in mm : 14.00
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 263.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 107.0
 tolerance degree : ± 4.0
 RATED SPEED
 rack travel mm : 14.00
 Rated speed rpm : 1105
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1215
 Tolerance 1/min : ± 15
 rack travel mm : 0.70
 Tolerance mm : ± 0.70
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : + - 30

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.05
Tolerance mm : + - 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 15.05
Tolerance mm : + - 0.05

Rated speed rpm : 700
Pressure hPa : -
rack travel mm : 11.80
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 700
Pressure hPa : 870
rack travel mm : 12.60
Tolerance mm : + - 0.10

Pressure hPa : 1130
rack travel mm : 14.15
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 194.5

Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm3/1000 strokes : 165.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 676 841

Injection pump
Pump designation : PE6P120A320LS7928
EP type number : 0 412 626 977

Governor
Governor design. : RSV600...1050POA696
Governor no. : 0 421 833 619

Cust. part No. : 0270744102

Customer-spec. information

Customer : MB-NFZ
Motor : OM 441 LA
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 210
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.35
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-45-120-165-240
: -285
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 14.70
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 275.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 600

Rack travel in mm : 4.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 275.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 86.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.70
Rated speed rpm : 1115

Tolerance 1/min : + 5

Check
speed 1/min : + 10

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
rack travel mm : 13.70

Rated speed rpm : 1102
Tolerance 1/min : + 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1300

Rated speed rpm : 1071
rack travel mm : 13.70

Rated speed rpm : 1103
Tolerance 1/min : + 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1300

Rated speed rpm : 1072
rack travel mm : 13.70

Rated speed rpm : 1104
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1073
rack travel mm : 13.70

Rated speed rpm : 1105
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1074
rack travel mm : 13.70

Rated speed rpm : 1106
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1075
rack travel mm : 13.70

Rated speed rpm : 1107
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 600
rack travel mm : 2.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 600
rack travel mm : 4.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 655
Tolerance 1/min : + 30

TORQUE CONTROL
Rated speed rpm : 1075
rack travel mm : 14.70
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 15.60
Tolerance mm : + 0.10

Rated speed rpm : 1000
rack travel mm : 15.00
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 16.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 15.60
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.80
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 13.80
Tolerance mm : + 0.20

Pressure hPa : 400
rack travel mm : 11.70

Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200

Rated speed rpm : 800

Del. quantity

cm³/1000 strokes : 319.0

Tolerance

cm³/1000 strokes : + - 3.0

Check tolerance

cm³/1000S. : + - 6.0

Rack travel mm : 15.00

Tolerance mm : + - 0.10

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 155.0

Tolerance

cm³/1000 strokes : + - 1.0

Check tolerance

cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 320.0

Tolerance

cm³/1000 strokes : + - 15.0

Check tolerance

cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 600

Rack travel in mm : 4.30

Tolerance mm : + - 0.10

Del. quantity

cm³/1000 strokes : 17.0

Tolerance

cm³/1000 strokes : + - 3.0

Check tolerance

cm³/1000S. : + - 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.10.98
Test oil : ISO 4113

Combination No. : 0 402 678 830

Injection pump
Pump designation : PE8P120A520/5RS7386
EP type number : 0 412 628 910

Governor
Governer design. : RSV325...1150POA365
Governer no. : 0 421 829 113

Cust. part No. : 12277649KY0120-17

Customer-spec. information

Customer : MWM
Motor : TBD 616 V16
Power KW : 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.10

Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6

Phasing : 0-30-45-75-90-120
: -315-345
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.60
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 262.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.40
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + - 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1800
 Del. quantity
 cm³/1000 strokes : 262.0

Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 116.0
 tolerance degree : + - 4.0
 RATED SPEED
 rack travel mm : 11.60
 Rated speed rpm : 1193
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1270
 Tolerance 1/min : + - 15
 rack travel mm : 0.85
 Tolerance mm : + - 0.55
 Rated speed rpm : 1380
 rack travel mm : 4.00
 Rated speed rpm : 1285
 Tolerance 1/min : + - 15

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + - 4.0
 Setting point w/out bumper spring
 Rated speed rpm : 300
 rack travel mm : 5.90
 Tolerance mm : + - 0.10
 Testing:
 Rated speed rpm : 300
 rack travel mm : 6.40
 Tolerance mm : + - 0.10
 rack travel mm : 2.00
 Rated speed rpm : 460
 Tolerance 1/min : + - 30

TORQUE CONTROL	
Rated speed rpm	: 1150
rack travel mm	: 12.60
Tolerance mm	: + - 0.05
Rated speed rpm	: 800
rack travel mm	: 12.60
Tolerance mm	: + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	: 600
Pressure hPa	: 1800
rack travel mm	: 12.60
Tolerance mm	: + - 0.05
Rated speed rpm	: 600
Pressure hPa	: -
rack travel mm	: 8.50
Tolerance mm	: + - 0.20

MEASUREMENT

Rated speed rpm	: 600
Pressure hPa	: 780
rack travel mm	: 9.60
Tolerance mm	: + - 0.20
Pressure hPa	: 1600
rack travel mm	: 12.45
Tolerance mm	: + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure	
hPa	: 1800
Rated speed rpm	: 800
Del. quantity	
cm3/1000 strokes	: 261.0
Tolerance	
cm3/1000 strokes	: + - 3.0
Check tolerance	
cm3/1000S.	: + - 6.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

Aneroid pressure	
hPa	: -
Rated speed rpm	: 500
Del. quantity	
cm3/1000 strokes	: 131.0
Tolerance	
cm3/1000 strokes	: + - 1.0
Check tolerance	
cm3/1000S.	: + - 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 12.0

STARTING FUEL DELIVERY

Rated speed rpm	: 100
rack travel mm	: > 19.50

LOW IDLE

Rated speed rpm	: 300
Rack travel in mm	: 6.40
Tolerance mm	: + - 0.10
Del. quantity	
cm3/1000 strokes	: 38.0
Tolerance	
cm3/1000 strokes	: + - 3.0
Check tolerance	
cm3/1000S.	: + - 6.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 746 606

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: -1K
Governor no. : 0 421 815 497

Cust. part No. : 9279607

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 195
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.00
Tolerance mm : + 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.27
Tolerance mm : + - 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.86
Tolerance mm : + - 0.20

Rated speed rpm : 756
guide sleeve
travel mm : 6.17
Tolerance mm : + - 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + - 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : + - 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 205.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 1090
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : + - 0.15

Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + - 0.15

Rated speed rpm : 950
rack travel mm : 13.60
Tolerance mm : + - 0.15

Rated speed rpm : 600
rack travel mm : 11.55
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + - 0.15

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940
rack travel mm : 13.00

Tolerance mm : + - 0.05

Pressure hPa : 670
rack travel mm : 11.25
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + - 0.15
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.20

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 25.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Spred

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 746 606A

Injection pump
Pump designation : PES6P110A720RS7406
EP type number : 0 412 716 810

Governor
Governor design. : RQV300...1050PA1090
: -1K
Governor no. : 0 421 815 497

Cust. part No. : 9279608

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI-E A3
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 195
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.00
Tolerance mm : + 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 205.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102

guide sleeve
travel mm : 10.05
Tolerance mm : + 0.15

Rated speed rpm : 350

guide sleeve
travel mm : 1.86
Tolerance mm : + 0.20

Rated speed rpm : 749

guide sleeve
travel mm : 6.11
Tolerance mm : + 0.25

Rated speed rpm : 480

guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330

guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 1090
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : + - 0.15

Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + - 0.15

Rated speed rpm : 950
rack travel mm : 13.60
Tolerance mm : + - 0.15

Rated speed rpm : 600
rack travel mm : 11.55
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 13.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + - 0.10

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940
rack travel mm : 13.00

Tolerance mm : + - 0.05

Pressure hPa : 670
rack travel mm : 11.25
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + - 0.15
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 175.0

Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 18.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.20

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spred

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 746 645

Injection pump
Pump designation : PES6P120A320RS7364
EP type number : 0 412 726 930

Governor
Governor design. : RQV300...1050PA1204
Governor no. : 0 421 814 123

Cust. part No. : CCEP 5148A 66-236

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06.20.45D41
Power KW : 219.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.40
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.80
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm	:	600
Del. quantity cm ³ /1000 strokes	:	287.0
Tolerance cm ³ /1000 strokes	:	+ - 1.0
Check tolerance cm ³ /1000S.	:	+ - 4.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

Rated speed rpm	:	300
Rack travel in mm	:	-7.50
Tolerance mm	:	+ - 0.10
Del. quantity cm ³ /1000 strokes	:	26.0
Tolerance cm ³ /1000 strokes	:	+ - 2.0
Check tolerance cm ³ /1000S.	:	+ - 5.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1135
guide sleeve travel mm	:	8.45
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	300
guide sleeve travel mm	:	1.33
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	752
guide sleeve travel mm	:	6.09
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	365

guide sleeve travel mm	:	2.40
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	415
guide sleeve travel mm	:	3.28
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	460
guide sleeve travel mm	:	3.86
Tolerance mm	:	+ - 0.25
Rated speed rpm	:	1460
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ - 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1230
Rack travel in mm	:	11.70
Tolerance mm	:	+ - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /100J strokes	:	287.0
Tolerance cm ³ /1000 strokes	:	+ - 1.0
Check tolerance cm ³ /1000S.	:	+ - 4.0
Spred	:	
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	303.0
tolerance degree	:	+ - 4.0

RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1145
Tolerance 1/min	:	+ - 5

rack travel mm : -9.80
Rated speed rpm : 1315
Tolerance 1/min : + - 15

rack travel mm : -13.30
Tolerance mm : + - 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 267.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.50
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm max. : < -5.00

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.55
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.45
Tolerance mm : + - 0.15

Pressure hPa : 400
rack travel mm : -0.50
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 230

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 295.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 162.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75
Del. quantity
cm3/1000 strokes : 145.0
Tolerance
cm3/1000 strokes : + - 15.0
Check tolerance
cm3/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 746 657

Injection pump
Pump designation : PES6P120A320RS7457
EP type number : 0 412 726 977

Governor
Governor design. : RQV325...1200PA1393
Governor no. : 0 421 814 210

Cust. part No. :

Customer-spec. information

Customer : STAR
Motor : T359E-CF
Power KW : 115.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 190
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.45
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.20
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : + - 3.0

Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1259
guide sleeve
travel mm : 9.83
Tolerance mm : + - 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.44
Tolerance mm : + - 0.20

Rated speed rpm : 897
guide sleeve
travel mm : 6.81
Tolerance mm : + - 0.25

Rated speed rpm : 560

guide sleeve
travel mm : 4.05
Tolerance mm : + - 0.25

Rated speed rpm : 1560
guide sleeve
travel mm : 13.50
Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1320

Rack travel in mm : 16.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 1265
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1390
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1470

	Tolerance mm	: + - 0.05
<hr/>		
LOW IDLE		
control lever position degree : 82.0		
tolerance degree : + - 4.0		
Setting point w/out bumper spring		
Rated speed rpm : 200		
CRT mm min. : > 10.00		
Testing:		
Rated speed rpm : 325		
rack travel mm : 6.20		
Tolerance mm : + - 0.10		
Rated speed rpm : 375		
<hr/>		
TORQUE CONTROL		
Rated speed rpm : 1200		
rack travel mm : 13.00		
Tolerance mm : + - 0.05		
Rated speed rpm : 800		
rack travel mm : 13.00		
Tolerance mm : + - 0.10		
<hr/>		
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm : 500		
Pressure hPa : 900		
rack travel mm : 13.00		
Tolerance mm : + - 0.05		
Rated speed rpm : 500		
Pressure hPa : -		
rack travel mm : 11.70		
Tolerance mm : + - 0.20		
MEASUREMENT		
Rated speed rpm : 500		
Pressure hPa : 220		
rack travel mm : 12.60		
Tolerance mm : + - 0.20		
Pressure hPa : 150		
rack travel mm : 12.10		
<hr/>		
Start interlock		
Rated speed rpm : > 100		
Rated speed rpm : < 245		
Check speed 1/min : > 80		
Check speed 1/min : < 265		
<hr/>		
FUEL DELIVERY CHARACTERISTICS		
<hr/>		
Aneroid pressure hPa	: 900	
Rated speed rpm	: 800	
Del. quantity cm ³ /1000 strokes	: 212.0	
Tolerance cm ³ /1000 strokes	: + - 3.0	
Check tolerance cm ³ /1000S.	: + - 6.0	
<hr/>		
Aneroid pressure hPa	: -	
Rated speed rpm	: 500	
Del. quantity cm ³ /1000 strokes	: 177.0	
Tolerance cm ³ /1000 strokes	: + - 1.0	
Check tolerance cm ³ /1000S.	: + - 4.0	
<hr/>		
STARTING FUEL DELIVERY		
<hr/>		
Rated speed rpm	: 100	
rack travel mm	: 20.50	
Tolerance mm	: + - 0.50	
Del. quantity cm ³ /1000 strokes	: 85.0	
Tolerance cm ³ /1000 strokes	: + - 10.0	
Check tolerance cm ³ /1000S.	: + - 14.0	
<hr/>		
LOW IDLE		
<hr/>		
Rated speed rpm	: 325	
Rack travel in mm	: 6.20	

Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.98
Test oil : ISO 4113

Combination No. : 0 402 746 994

Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914

Governor
Governor design. : RQV275...1000PA1161
Governor no. : 0 421 814 100

Cust. part No. : CCEP 5143A 66-231

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 062045 E/41
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1086
guide sleeve
travel mm : 8.09
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.66

Tolerance mm : \pm 0.25

Rated speed rpm : 793

guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.25

Rated speed rpm : 343

guide sleeve
travel mm : 2.33
Tolerance mm : \pm 0.25

Rated speed rpm : 393

guide sleeve
travel mm : 2.95
Tolerance mm : \pm 0.25

Rated speed rpm : 500

guide sleeve
travel mm : 3.72
Tolerance mm : \pm 0.25

Rated speed rpm : 1410

guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1235

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure

hPa : 1000

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + - 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : + - 5

rack travel mm : -8.60
Rated speed rpm : 1215
Tolerance 1/min : + - 15

rack travel mm : -12.10
Tolerance mm : + - 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -5.70

Testing:

Rated speed rpm : 300
rack travel mm : -7.70
Tolerance mm : + - 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : -3.45
Tolerance mm : + - 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -2.70
Tolerance mm : + - 0.15

Pressure hPa : 640
rack travel mm : -0.75
Tolerance mm : + - 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 225

Check
speed 1/min : > 80
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 284.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 121.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75

Det. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.70
Tolerance mm : + - 0.10
Det. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.98
Test oil : ISO 4113

Combination No. : 0 402 846 083

Injection pump
Pump designation : PE6P120A320RS8052
EP type number : 0 412 826 038

Governor
Governer design. : RQV300...1100PA1248
Governer no. : 0 421 814 165

Cust. part No. : 11031370
: -P02 v.11.97

Customer-spec. information

Customer : VCE
Motor : TD 104 KAE
Power KW : 216.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Tolerance mm : + 0.05

Del. quantity : _____
 cm³/1000 strokes : 280.0
 Tolerance : _____
 cm³/1000 strokes : + - 1.0
 Check tolerance : _____
 cm³/1000S. : + - 4.0
 Spread : _____
 Tolerance : _____
 cm³/1000 strokes : 8.0
 Check tolerance : _____
 cm³/1000S. : 11.0

 Rated speed rpm : 300
 Tolerance mm : + - 0.10
 Del. quantity : _____
 cm³/1000 strokes : 150.0
 Tolerance : _____
 cm³/1000 strokes : + - 2.5
 Check tolerance : _____
 cm³/1000S. : + - 5.0
 Spread : _____
 Tolerance : _____
 cm³/1000 strokes : 5.0
 Check tolerance : _____
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131
 guide sleeve
 travel mm : 8.39
 Tolerance mm : + - 0.15
 Rated speed rpm : 330
 guide sleeve
 travel mm : 1.83
 Tolerance mm : + - 0.20
 Rated speed rpm : 1044
 guide sleeve
 travel mm : 6.97
 Tolerance mm : + - 0.25
 Rated speed rpm : 500
 guide sleeve
 travel mm : 4.68
 Tolerance mm : + - 0.25

Rated speed rpm : 1310
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1194
 Rack travel in mm : 10.00
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Del. quantity : _____
 cm³/1000 strokes : 280.0
 Tolerance : _____
 cm³/1000 strokes : + - 1.0
 Check tolerance : _____
 cm³/1000S. : + - 4.0
 Spread : _____
 Tolerance : _____
 cm³/1000 strokes : 8.0
 Check tolerance : _____
 cm³/1000S. : 11.0

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : + - 4.0

control lever
 position degree : 118.0
 tolerance degree : + - 4.0

RATED SPEED
 rack travel mm : 11.30
 Rated speed rpm : 1130
 Tolerance 1/min : + - 5

rack travel mm : 4.00
 Rated speed rpm : 1175
 Tolerance 1/min : + - 15

rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + - 4.0

control lever
position degree : 11.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
Tolerance mm : + - 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 700
Tolerance mm : + - 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.30
Tolerance mm : + - 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 2.50
Tolerance mm : + - 0.20

Pressure hPa : 220
rack travel mm : 0.25
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

LOW IDLE

Rated speed rpm : 300
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.10.98
Test oil : ISO 4113

Combination No. : 0 403 446 318

Injection pump
Pump designation : PES6MW100/320RS1214
: -1
EP type number : 0 413 406 224

Governor
Governer design. : RQV275...1250MW115
: -1K
Governer no. : 0 420 083 992

Cust. part No. :

Customer-spec. information

Customer : RVI
Motor : MIDR 060226 V
Power KW : 129.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 18.00
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.10
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1250
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 3.0

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 275

Rack travel in mm : -7.45

Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 4.5

Spred

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1314

guide sleeve

travel mm : 9.71

Tolerance mm : + - 0.25

Rated speed rpm : 275

guide sleeve

travel mm : 1.00

Tolerance mm : + - 0.25

Rated speed rpm : 912

guide sleeve

travel mm : 6.70

Tolerance mm : + - 0.25

Rated speed rpm : 390

guide sleeve

travel mm : 2.39

Tolerance mm : + - 0.25

Rated speed rpm : 440

guide sleeve

travel mm : 2.90

Tolerance mm : + - 0.25

Rated speed rpm : 560

guide sleeve

travel mm : 4.01

Tolerance mm : + - 0.25

Rated speed rpm : 1650

guide sleeve

travel mm : 13.50

Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

control lever

position degree : 298

Rated speed rpm : 1460

Rack travel in mm : 10.00

Tolerance mm : + - 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 110.0

Tolerance

cm³/1000 strokes : + - 1.0

Check tolerance

cm³/1000S. : + - 3.0

Spred

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 292.0

tolerance degree : + - 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1300

Tolerance 1/min : + - 15

rack travel mm : -9.10

Rated speed rpm : 1455
Tolerance 1/min : \pm 5

rack travel mm : -12.60
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 242.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -6.85

Testing:

Rated speed rpm : 275
rack travel mm : -7.45
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -0.90
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000
Tolerance mm : \pm 0.05

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : -1.95

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 120
rack travel mm : -1.45
Tolerance mm : \pm 0.15

Pressure hPa : 240
rack travel mm : -0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 200
Rated speed rpm : < 230

Check
speed 1/min : > 170
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.5

Aneroid pressure
hPa : -
Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + - 0.75
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -7.45
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.98
Test oil : ISO 4113

Combination No. : 0 400 074 904G2

Injection pump
Pump designation : PES4M55C320RS169
EP type number : 0 410 054 959

Governor
Governor design. : RSF375/2300M56-6
Governor no. : 0 420 021 110

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-ECE
Power KW : 53.

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40.0
Tolerance °C : +2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.00
Tolerance bar : +0.1

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.50
Tolerance bar : +1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.00
Tolerance bar : +1.0

Prestroke mm : 2.05
Tolerance mm : +0.05
Check
tolerance mm : +0.10

Rack travel in mm : 21.00
Tolerance mm : +1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
: 0.80
: 1.00

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : +0.20
Check
tolerance °NW : +0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : +0.05

Del. quantity
cm³/1000 strokes : 33.50

Tolerance
cm³/1000 strokes : +0.50

Check tolerance cm³/1000S. : +1.50

Spred
Tolerance cm³/1000 strokes : 2.50

Check tolerance cm³/1000S. : 3.00

Rated speed rpm : 375

Rack travel in mm : 6.50
Tolerance mm : +0.10

Del. quantity cm³/1000 strokes : 6.50
Tolerance cm³/1000 strokes : +0.50
Spred
Tolerance cm³/1000 strokes : 1.00

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : +0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure ALDA / ADA hPa : 1100
Del. quantity cm³/1000 strokes : 33.50
Tolerance cm³/1000 strokes : +0.50
Check tolerance cm³/1000S. : +1.50
Spred
Tolerance cm³/1000 strokes : 2.50
Check tolerance cm³/1000S. : 3.00

RATED SPEED

control lever position degree : 50.0

Rated speed rpm : 2500
rack travel mm : 8.70

Tolerance mm : +0.20

Rated speed rpm : 2950
rack travel mm : 0.50
Tolerance mm : +0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.25

LOW IDLE

control lever position degree : 14.0
tolerance degree : +2.0

Setting point w/out bumper spring
Rated speed rpm : 375
rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.40
Tolerance mm : +0.10

rack travel mm : 2.00
Rated speed rpm : 710
Tolerance 1/min : +50

Load pick-up

Rated speed rpm : 250
rack travel mm : >11.00

Rated speed rpm : 1000
CRT mm max. : 1.25
rack travel mm : 6.50
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : +0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : +0.10

Rated speed rpm : 2300

rack travel mm : 11.50
Tolerance mm : +0.10

Check tolerance
cm³/1000S. : 3.00

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : +0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : +0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : +0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 33.80
Tolerance
cm³/1000 strokes : +0.80
Check tolerance
cm³/1000S. : +1.80
Spread
Tolerance
cm³/1000 strokes : 2.50
Check tolerance
cm³/1000S. : 3.00

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2300
Spread
Del. quantity
cm³/1000 strokes : 35.00
Tolerance
cm³/1000 strokes : +1.00
Check tolerance
cm³/1000S. : +2.00
Spread
Tolerance
cm³/1000 strokes : 2.50

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2500
rack travel mm : 8.70
Tolerance mm : +0.20
Del. quantity
cm³/1000 strokes : 24.00
Tolerance
cm³/1000 strokes : +2.00
Check tolerance
cm³/1000S. : +3.00
Spread
Tolerance
cm³/1000 strokes : 2.50
Check tolerance
cm³/1000S. : 3.00

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 52.00
Spread
Tolerance
cm³/1000 strokes : 6.00
Check tolerance
cm³/1000S. : 6.00

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.80
Check tolerance
cm³/1000S. : +2.30
Spread
Check tolerance
cm³/1000S. : 1.50

control lever
position degree : >49.0

control lever
position degree : <46.5

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 14.0
tolerance degree : ± 2.0

Rated speed rpm : 425

Rack travel in mm : 9.00
Tolerance mm : ± 0.80
Vacuum hPa : -400

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.98
Test oil : ISO 4113

Combination No. : 0 400 076 954G2

Injection pump
Pump designation : PES6M55C320RS203
EP type number : 0 410 056 982

Governor
Governor design. : RSF315/2500M70-10
Governor no. : 0 420 021 175

Cust. part No. :

Customer-spec. information

Customer : MB-PKW
Motor : OM606
Power KW : 100.

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40.0
Tolerance °C : +2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.00
Tolerance bar : +0.1

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.50
Tolerance bar : +1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.00
Tolerance bar : +1.0

Prestroke mm : 1.75
Tolerance mm : +0.05
Check tolerance mm : +0.10

Rack travel in mm : 21.00
Tolerance mm : +1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
: 0.80
: 1.00

Start of delivery blocking

*NW after s.o.d. : 16.50
Tolerance : +0.20
Check tolerance °NW : +0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.35
Tolerance mm : +0.05

Del. quantity
cm³/1000 strokes : 39.40

Tolerance
cm³/1000 strokes : +0.50

Check tolerance
cm³/1000S. : +1.50

Spred
Tolerance
cm³/1000 strokes : 2.50

Check tolerance
cm³/1000S. : 3.00

Rated speed rpm : 290

Rack travel in mm : 7.30
Tolerance mm : +0.10

Del. quantity
cm³/1000 strokes : 8.50
Tolerance

cm³/1000 strokes : +0.50
Spred

Tolerance
cm³/1000 strokes : 1.00

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : +0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 39.40
Tolerance
cm³/1000 strokes : +0.50
Check tolerance
cm³/1000S. : +1.50
Spred
Tolerance
cm³/1000 strokes : 2.50
Check tolerance
cm³/1000S. : 3.00

RATED SPEED

Rated speed rpm : 2700
Tolerance mm : +0.10

Rated speed rpm : 3000
rack travel mm : 1.00
Tolerance mm : +1.00

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1100
CRT mm max. : 1.95

LOW IDLE

Setting point w/out bumper spring
Rated speed rpm : 290
rack travel mm : 7.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 6.00
Tolerance mm : +0.10

Load pick-up

rack travel mm : >0.00
Rated speed rpm : 1100

CRT mm max. : 1.95
rack travel mm : 7.30
Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.35
Tolerance mm : +0.05

Rated speed rpm : 2000
rack travel mm : 12.75
Tolerance mm : +0.15

Rated speed rpm : 2500
rack travel mm : 12.25
Tolerance mm : +0.15

Rated speed rpm : 500
rack travel mm : 12.50
Tolerance mm : +0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1100
 Ref. pressure
 ALDA / ADA hPa : 940
 rack travel mm : -0.10
 Tolerance mm : ±0.10

MEASUREMENT

Rated speed rpm : 1100
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.40
 Tolerance mm : ±0.10

Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -1.50
 Tolerance mm : ±0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2000
 Del. quantity
 cm³/1000 strokes : 40.10
 Tolerance
 cm³/1000 strokes : ±0.80
 Check tolerance
 cm³/1000S. : ±1.80
 Spread
 Tolerance
 cm³/1000 strokes : 2.50
 Check tolerance
 cm³/1000S. : 3.00

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2500
 Spread
 Del. quantity
 cm³/1000 strokes : 39.50
 Tolerance
 cm³/1000 strokes : ±1.00
 Check tolerance
 cm³/1000S. : ±2.00
 Spread
 Tolerance
 cm³/1000 strokes : 2.50
 Check tolerance
 cm³/1000S. : 3.00

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 32.90

Tolerance
 cm³/1000 strokes : ±0.80
 Check tolerance
 cm³/1000S. : ±1.80
 Tolerance
 cm³/1000 strokes : 2.50
 Check tolerance
 cm³/1000S. : 3.00

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2700
 Tolerance mm : ±0.10
 Del. quantity
 cm³/1000 strokes : 20.00
 Tolerance
 cm³/1000 strokes : ±2.00
 Check tolerance
 cm³/1000S. : ±3.00
 Spread
 Tolerance
 cm³/1000 strokes : 2.50
 Check tolerance
 cm³/1000S. : 3.00

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.60
 Tolerance mm : ±1.50
 Del. quantity
 cm³/1000 strokes : 61.00
 Tolerance
 cm³/1000 strokes : ±4.00
 Check tolerance
 cm³/1000S. : ±5.00
 Spread
 Tolerance
 cm³/1000 strokes : 8.00
 Check tolerance
 cm³/1000S. : 8.50

LOW IDLE

Rated speed rpm : 290
 rack travel mm : 7.50
 Tolerance mm : ±0.15
 Del. quantity
 cm³/1000 strokes : 9.50
 Check tolerance
 cm³/1000S. : ±2.30
 Spread

Check tolerance
cm³/1000S. : 1.50

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

Rated speed rpm : 315

Rack travel in mm : 13.20

Tolerance mm : ±0.70

Del. quantity

cm³/1000 strokes : 1.80

Del. quantity

cm³/1000 strokes : 34.00

Tolerance

cm³/1000 strokes : ±3.50

Rated speed rpm : 3000

Rack travel in mm : 1.00

Tolerance mm : ±1.00

Starting test

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 1.80

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.10.98
Test oil : ISO 4113

Combination No. : 0 401 846 505

Injection pump
Pump designation : PE6P110A320RS483
EP type number : 0 411 816 159

Governor
Governor design. : RQV250...1200PA918
Governor no. : 0 421 813 772

Cust. part No. :

Customer-spec. information

Customer : VOLVO
Motor : TD71F; FQ, FAQ
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 096

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.05
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity
cm³/1000 strokes : 128.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.40
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + - 2.0

Check tolerance
cm³/1000S. : + - 5.0

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1260

guide sleeve
travel mm : 7.80
Tolerance mm : + - 0.10

Rated speed rpm : 250

guide sleeve
travel mm : 1.20
Tolerance mm : + - 0.10

Rated speed rpm : 380

guide sleeve
travel mm : 2.45
Tolerance mm : + - 0.15

Rated speed rpm : 500

guide sleeve
travel mm : 3.10
Tolerance mm : + - 0.20

Rated speed rpm : 1400

guide sleeve
travel mm : 9.15
Tolerance mm : + - 0.15

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1330

Rack travel in mm : 16.50
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 128.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : + - 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1245
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1395
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 60.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.80

Testing:

Rated speed rpm : 250
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 350

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 270
rack travel mm : 0.30
Tolerance mm : \pm 0.10

Pressure hPa : 560
rack travel mm : 1.85
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0

Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98
Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump
Pump designation : PES6P110A320RS3329Z
EP type number : 0 412 016 744

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1309376/3

Customer-spec. information

Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1298
guide sleeve
travel mm : 10.25
Tolerance mm : + 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.25
Tolerance mm : + 0.20

Rated speed rpm : 863
guide sleeve
travel mm : 5.41
Tolerance mm : + 0.25

Rated speed rpm : 520

guide sleeve
travel mm : 3.02
Tolerance mm : + 0.25

Rated speed rpm : 1510
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1370

Rack travel in mm : 10.85
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.85
Rated speed rpm : 1285
Tolerance 1/min : + 5

Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1360
Tolerance 1/min : + 15

Check
speed 1/min : + 20

rack travel mm : 0.50

Tolerance mm : + - 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : + - 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : + - 0.10

Rated speed rpm : 1250
rack travel mm : 11.85
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 11.85
Tolerance mm : + - 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.35
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : + - 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

rack travel mm : 11.85
Tolerance mm : + - 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.5

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.50
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.98
Test oil : ISO 4113

Combination No. : 0 402 646 673

Injection pump
Pump designation : PE6P120A320RS7412
EP type number : 0 412 626 953

Governor
Governor design. : RQV275...1000PA1300K
Governor no. : 0 421 815 527

Cust. part No. : 1315099

Customer-spec. information

Customer : DAF
Motor : XF 250 M
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + - 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : + - 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 15.0
Tolerance bar : + - 1.0

Prestroke mm : 4.45
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

Tolerance : + - 0.10
Check
tolerance °NW : + - 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.85
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 283.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 3.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spred

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1072
guide sleeve

travel mm : 10.16
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve

travel mm : 2.04
Tolerance mm : \pm 0.20

Rated speed rpm : 701
guide sleeve

travel mm : 6.52
Tolerance mm : \pm 0.25

Rated speed rpm : 400
guide sleeve

travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1310
guide sleeve

travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1

Rated speed rpm : 1181

Rack travel in mm : 10.00
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 283.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1045

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1140

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

rack travel mm : 0.70
 Tolerance mm : \pm 0.70
 Rated speed rpm : 1275

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 6.30

Testing:

Rated speed rpm : 275
 rack travel mm : 3.70
 Tolerance mm : \pm 0.10

Rated speed rpm : 310

TORQUE CONTROL

Rated speed rpm : 750
 rack travel mm : 11.85
 Tolerance mm : \pm 0.05

Rated speed rpm : 980
 rack travel mm : 11.35
 Tolerance mm : \pm 0.10

Rated speed rpm : 900
 rack travel mm : 11.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 700
 rack travel mm : 11.75
 Tolerance mm : \pm 0.10

Rated speed rpm : 600
 rack travel mm : 11.20
 Tolerance mm : \pm 0.10

Rated speed rpm : 500
 rack travel mm : 10.80
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 775
 Pressure hPa : 1500
 rack travel mm : 11.85
 Tolerance mm : \pm 0.05

Rated speed rpm : 775
 Pressure hPa : -
 rack travel mm : 8.30
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 775
 Pressure hPa : 460
 rack travel mm : 11.00
 Tolerance mm : \pm 0.05

Pressure hPa : 250
 rack travel mm : 9.30
 Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 980
 Del. quantity
 cm³/1000 strokes : 245.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

rack travel mm : 11.50
 Tolerance mm : \pm 0.10

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 188.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.70

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 13.5

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.98
Test oil : ISO 4113

Combination No. : 0 402 648 932B

Injection pump
Pump designation : PE8P120A320LS7849
EP type number : 0 412 628 864

Governor
Governor design. : RQV300...1050PA1034
Governor no. : 0 421 813 993

Cust. part No. : 9274608

Customer-spec. information

Customer : LIEBHERR
Motor : D 9308 TI
Power KW : 360.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.55
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 264.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 24.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1118
 guide sleeve
 travel mm : 10.51
 Tolerance mm : ± 0.25

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.94
 Tolerance mm : ± 0.25

Rated speed rpm : 783
 guide sleeve
 travel mm : 6.60
 Tolerance mm : ± 0.25

Rated speed rpm : 356
 guide sleeve
 travel mm : 1.95
 Tolerance mm : ± 0.25

Rated speed rpm : 406
 guide sleeve
 travel mm : 2.67
 Tolerance mm : ± 0.25

Rated speed rpm : 490
 guide sleeve
 travel mm : 3.59
 Tolerance mm : ± 0.25

Rated speed rpm : 1320

guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 1140

Rack travel in mm : 13.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 264.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 107.0
 tolerance degree : ± 4.0

RATED SPEED
 rack travel mm : 13.50
 Rated speed rpm : 945
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1085
 Tolerance 1/min : ± 15

rack travel mm : 0.70
 Tolerance mm : ± 0.70
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 81.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 8.50

Testing:

rack travel mm : 2.00

Rated speed rpm : 460

Tolerance 1/min : + 30

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 14.55

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 14.55

Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550

Pressure hPa : 1400

rack travel mm : 14.55

Tolerance mm : + 0.05

Rated speed rpm : 550

Pressure hPa : -

rack travel mm : 11.75

Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 710

rack travel mm : 12.55

Tolerance mm : + 0.10

Pressure hPa : 860

rack travel mm : 13.75

Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 550

Del. quantity cm³/1000 strokes : 220.5

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Spred

Tolerance

cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100

rack travel mm : 20.50

Tolerance mm : + 0.50

Del. quantity cm³/1000 strokes : 160.0

Tolerance

cm³/1000 strokes : + 10.0

Check tolerance cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350

Del. quantity cm³/1000 strokes : 24.5

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance cm³/1000S. : + 6.0

Spred

Tolerance

cm³/1000 strokes : 6.0

Check tolerance cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.98
Test oil : ISO 4113

Combination No. : 0 403 466 182

Injection pump
Pump designation : PES6MW100/120RS1247
EP type number : 0 413 406 248

Governor
Governor design. : RSV500...1100MW5A412
Governor no. : 0 420 085 303

Cust. part No. : 3935106

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTINGRated speed rpm : 1100

Rack travel in mm : 13.20

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.35

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0Tolerance
cm³/1000 strokes : \pm 2.0Check tolerance
cm³/1000S. : \pm 4.5

Spred

Tolerance
cm³/1000 strokes : 3.5Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITIONcontrol lever
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 163.0Tolerance
cm³/1000 strokes : \pm 1.0Check tolerance
cm³/1000S. : \pm 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0Check tolerance
cm³/1000S. : 7.5

CONTROL LEVERcontrol lever
position degree : 109.0tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20

Rated speed rpm : 1170

Tolerance 1/min : \pm 5Check
speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1265

Tolerance 1/min : \pm 5Check
speed 1/min : \pm 10

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1270

Tolerance 1/min : \pm 15Check
speed 1/min : \pm 20

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

Control lever difference
Grad : 21.0
tolerance degree : + - 6.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 4.85
Tolerance mm : + - 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.35
Tolerance mm : + - 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.20
Tolerance mm : + - 0.05

Rated speed rpm : 750
rack travel mm : 13.55
Tolerance mm : + - 0.20

Rated speed rpm : 1000
rack travel mm : 13.55
Tolerance mm : + - 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.05
Tolerance mm : + - 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.30

Tolerance mm : + - 0.20
Pressure hPa : 560
rack travel mm : 11.80
Tolerance mm : + - 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 170.5
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.35
Tolerance mm : + - 0.10

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 698 804

Injection pump
Pump designation : PE8P120A720LS7205
EP type number : 0 412 628 895

Governor
Governor design. : RE30
Governor no. : 0 421 890 007

Cust. part No. : 1328039

Customer-spec. information

Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0.720
Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4.500
Tolerance Volt : ± 0.115
 CRT mm : 19.00
Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0

Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + 0.060
Check tolerance Volt : + 0.060
Del. quantity cm³/1000 strokes : 16.0
Tolerance cm³/1000 strokes : + 3.0
Speed
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 698 806

Injection pump
Pump designation : PE8P120A720LS7331
EP type number : 0 412 628 896

Governor
Governer design. : RE30
Governer no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information

Customer : SCANIA
Motor : DSC1409,DSC1416

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.50
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : +/- 0,115
 CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
 Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min $^{-1}$: 600
Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: +/- 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: +/- 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0

Tolerance
cm³/1000 strokes : +— 4.0
Check tolerance
cm³/1000S. : +— 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : +— 0.060
Check tolerance
Volt : +— 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : +— 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.95
Test oil : ISO 4113

Combination No. : 0 402 196 703

Injection pump
Pump designation : PES6P120A720RS3184
EP type number : 0 412 026 727

Governor
Governor design. : RE24
Governor no. : 0 421 890 018

Cust. part No. : RE 57372

Customer-spec. information

Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 10.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.50

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min $^{-1}$: 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
 $U_{act} \text{ V}$: 2.710
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 141.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000\text{s}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 2.710
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 142.0

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113

Combination No. : 0 402 698 805

Injection pump
Pump designation : PE8P120A720LS7205
: -10
EP type number : 0 412 628 895

Governor
Governor design. : RE30
Governor no. : 0 421 890 019

Cust. part No. : 1361306

Customer-spec. information

Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.7
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.96
Test oil : ISO 4113

Combination No. : 0 402 896 009

Injection pump
Pump designation : PE6P120A320RS8020
EP type number : 0 412 826 021

Governor
Governor design. : RE30
Governor no. : 0 421 890 010

Cust. part No. : 479889-P03 V.08/95

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD123, TD103 E ES
Power KW : 290.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + - 1.0

Prestroke mm : 4.05
Tolerance mm : + - 0.05
Check tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.50
Check tolerance °NW : + - 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500

Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 258.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + - 2.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 402 796 821

Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 67492

Customer-spec. information

Customer : DEERE
Motor : 6101HZ013
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 9.25
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference ° CS : 3.75

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 $U_{act} \text{ V}$: 3.030
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 213.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 7.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.120
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 237.0

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 696 801

Injection pump
Pump designation : PE6P120A720RS7211
: -10
EP type number : 0 412 626 931

Governor
Governor design. : RE30
Governor no. : 0 421 890 009

Cust. part No. : 1328037

Customer-spec. information

Customer : SCANIA
Motor : DTC1102,DSC1170

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

Vibration damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)
Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity cm³/1000 strokes : 248.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity cm³/1000 strokes : 224.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 696 803

Injection pump
Pump designation : PE6P120A720RS7211
EP type number : 0 412 626 838

Governor
Governor design. : RE30
Governor no. : 0 421 890 019

Cust. part No. : 1370681

Customer-spec. information

Customer : SCANIA
Motor : DSC1122, DTC1102

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 696 804

Injection pump
Pump designation : PE6P120A720RS7355
EP type number : 0 412 626 933

Governor
Governor design. : RE30
Governor no. : 0 421 890 022

Cust. part No. : 1370672

Customer-spec. information

Customer : SCANIA
Motor : DSC1122,DTC1102

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
 (P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10

Check value
 (P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
 Tolerance mm : ± 0.25
 Check
 tolerance mm : ± 0.30

Setting point
 (M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10

Check value
 (M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
 Tolerance mm : ± 0.25
 Check
 tolerance mm : ± 0.30

Stop position
 (P, R and H pump)

$U_{act} \text{ V}$: Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : ± 0.25
 Check

tolerance mm : ± 0.35

Stop position
 (M pump)

$U_{act} \text{ V}$: 0.720
 Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
 (M pump)

$U_{act} \text{ V}$: 4.500
 Tolerance Volt : ± 0.115
 CRT mm : 19.00
 Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min $^{-1}$: 60
 Amplitude V : 1.4
 Tolerance V : ± 0.6
 Check
 tolerance V : ± 1.20

Engine speed min $^{-1}$: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER**TEST POINT V1**

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
 Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
 Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
 Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0
 Spread
 Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
 Check tolerance
 $\text{cm}^3/1000\text{s.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
 Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 698 802

Injection pump
Pump designation : PE8P120A920/4LS7149
EP type number : 0 412 628 826

Governor
Governer design. : RE30
Governer no. : 0 421 890 007

Cust. part No. : 397567

Customer-spec. information
Customer : SCANIA
Motor : DSC1404

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025.

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.180
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 227.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 6.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.180
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 220.0

Tolerance
cm³/1000 strokes : +⁻ 4.0
Check tolerance
cm³/1000S. : +⁻ 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.600
Tolerance Volt : +⁻ 0.060
Check tolerance Volt : +⁻ 0.060
Del. quantity cm³/1000 strokes : 18.0
Tolerance cm³/1000 strokes : +⁻ 2.0
Speed
Tolerance cm³/1000 strokes : 3.0
Check tolerance cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113

Combination No. : 0 402 796 820

Injection pump
Pump designation : PES6P120A720LS7410
EP type number : 0 412 726 957

Governor
Governor design. : RE30
Governor no. : 0 421 890 038

Cust. part No. : 0260744902

Customer-spec. information

Customer : MTU
Motor : 6-R-183
Power KW : 441.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.00
Tolerance mm : + 1.00

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)		Tolerance Volt : \pm 0,115 CRT mm : 19,00 Tolerance mm : \pm 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : \pm 0.05 Check tolerance mm : \pm 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : \pm 0.25 Check tolerance mm : \pm 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : \pm 0.6 Check tolerance V : \pm 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : \pm 0.05 Check tolerance mm : \pm 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : \pm 0.25 Check tolerance mm : \pm 0.30		Rated speed rpm : 1150 Uact V : 3.500 Del. quantity cm ³ /1000 strokes : 362.0 Tolerance cm ³ /1000 strokes : \pm 1.0 Check tolerance cm ³ /1000S. : \pm 4.0 Spread Tolerance cm ³ /1000 strokes : 6.0 Check tolerance cm ³ /1000S. : 10.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : \pm 0.25 Check tolerance mm : \pm 0.35		Rated speed rpm : 750 Uact V : 3.500 Del. quantity cm ³ /1000 strokes : 428.0 Tolerance cm ³ /1000 strokes : \pm 4.0 Check tolerance cm ³ /1000S. : \pm 6.0
Stop position (M pump)		TEST POINT L1
Uact V : 0,720 Tolerance Volt : \pm 0,065 CRT mm : 1,00		Rated speed rpm : 350 Uact V : 1.340 Tolerance Volt : \pm 0.060
Starting position (M pump)		
Uact V : 4,500		

Def. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 896 004

Injection pump
Pump designation : PE6P120A720RS8010
EP type number : 0 412 826 014

Governor
Governor design. : RE30
Governor no. : 0 421 890 009

Cust. part No. : 1328145

Customer-spec. information

Customer : SCANIA
Motor : DSC1127

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : +/- 0,115
 CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
 Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min $^{-1}$: 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.500
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 332.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: +/- 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: +/- 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.500
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 301.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.720
Tolerance Volt : + - 0.060
Check tolerance Volt : + - 0.060
Del. quantity cm³/1000 strokes : 16.0
Tolerance cm³/1000 strokes : + - 3.0
Spred
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 896 013

Injection pump
Pump designation : PE6P120A720RS8025
EP type number : 0 412 826 026

Governor
Governor design. : RE30
Governor no. : 0 421 890 019

Cust. part No. : 1361124

Customer-spec. information

Customer : SCANIA
Motor : DSC1124

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x Length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.500
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 340.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.500
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 309.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.640
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.03.96
Test oil : ISO 4113

Combination No. : 0 402 795 204

Injection pump
Pump designation : PES5H120/720/3LS1004
: -1
EP type number : 0 412 725 204

Governor
Governer design. : RE33
Governer no. : 0 421 890 364

Cust. part No. : 51.111103-7538

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115

CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0
Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 311.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.03.96
Test oil : ISO 4113

Combination No. : 0 402 795 205

Injection pump
Pump designation : PES5H120/720/3LS1002
: -2
EP type number : 0 412 725 205

Governor
Governor design. : RE33
Governor no. : 0 421 890 362

Cust. part No. : 51.111103-7540

Customer-spec. information

Customer : MAN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115

CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0
Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 311.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.03.96
Test oil : ISO 4113

Combination No. : 0 402 796 040

Injection pump
Pump designation : PES6H120/320RS10-1
EP type number : 0 412 726 009

Governor
Governor design. : RE36
Governor no. : 0 421 890 363

Cust. part No. : 51.11103-7537

Customer-spec. information

Customer : MAN
Motor : D 0826 LUH 12
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H02

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 8.00
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)		Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : + - 0.6 Check tolerance V : + - 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Rated speed rpm : 800 Uact V : 2.510 Prestroke solenoid Stroke mm : 13.20 Del. quantity cm3/1000 strokes : 222.0 Tolerance cm3/1000 strokes : + - 1.0 Check tolerance cm3/1000S. : + - 4.0 Spred Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000S. : 9.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.35		<hr/> Rated speed rpm : 800 Uact V : 1.400 Prestroke solenoid Stroke mm : 12.00 Del. quantity cm3/1000 strokes : 60.0 Tolerance cm3/1000 strokes : + - 4.0 Check tolerance cm3/1000S. : + - 8.0 Spred Tolerance cm3/1000 strokes : 4.0
Stop position (M pump)		
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		
Starting position (M pump)		
Uact V : 4,500		

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 1200
Uact V : 2.540
Prestroke solenoid
Stroke mm : 10.30
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : + - 6.0
Check tolerance
cm³/1000S. : + - 10.0

Rated speed rpm : 500
Uact V : 1.930
Prestroke solenoid
Stroke mm : 10.40
Del. quantity
cm³/1000 strokes : 146.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 8.80
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.100
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : + - 6.0

Check tolerance
cm³/1000S. : + - 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.03.96
Test oil : ISO 4113

Combination No. : 0 402 796 205

Injection pump
Pump designation : PES6H120/720/3LS1006
: -1
EP type number : 0 412 726 205

Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 0 41103-7541

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 699 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1:	0	Uact V : 4,500
Setting point (P, R and H pump)		Tolerance Volt : + - 0,115
Uact V : 3.100	CRT mm : 13.00	CRT mm : 19,00
Tolerance mm : +/- 0.05	Check tolerance mm : +/- 0.10	Tolerance mm : + - 0,80
Check value (P, R and H pump)		ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Uact V : 1.700	CRT mm : 6.15	Test with control rod in stop position
Tolerance mm : +/- 0.25	Check tolerance mm : +/- 0.30	Engine speed min-1: 60
Setting point (M pump)		Amplitude V : 1.4
Uact V : 3.100	CRT mm : 12.50	Tolerance V : +/- 0.6
Tolerance mm : +/- 0.05	Check tolerance mm : +/- 0.10	Check tolerance V : +/- 1.20
Check value (M pump)		Engine speed min-1: 600
Uact V : 1.700	CRT mm : 5.50	Difference Amplitude to
Tolerance mm : +/- 0.25	Check tolerance mm : +/- 0.30	Amplitude V : max.1.4
Stop position (P, R and H pump)		
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		(C) INJECTION PUMP WITH POSITIONER
CRT mm : 0.75		TEST POINT V1
Tolerance mm : +/- 0.25		Rated speed rpm : 750
Check tolerance mm : +/- 0.35		Uact V : 3.350
Stop position (M pump)		Prestroke solenoid
Uact V : 0,720		Stroke mm : 10.00
Tolerance Volt : + - 0,065		Del. quantity cm3/1000 strokes : 332.0
CRT mm : 1,00		Tolerance cm3/1000 strokes : + - 1.0
Starting position (M pump)		Check tolerance cm3/1000S. : + - 4.0
		Spread Tolerance cm3/1000 strokes : 5.0
		Check tolerance cm3/1000S. : 9.0
		FUEL DELIVERY CHARACTERISTICS
		Rated speed rpm : 750
		Uact V : 1.450
		Prestroke solenoid
		Stroke mm : 10.00
		Del. quantity cm3/1000 strokes : 74.0
		Tolerance cm3/1000 strokes : + - 4.0
		Check tolerance cm3/1000S. : + - 8.0
		Spread

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 314.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 307.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.96
Test oil : ISO 4113

Combination No. : 0 402 196 702

Injection pump
Pump designation : PES6P120A720RS3184
EP type number : 0 412 026 727

Governor
Governor design. : RE24
Governor no. : 0 421 890 006

Cust. part No. : RE 47396

Customer-spec. information

Customer : DEERE
Motor : 6076 F030
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 10.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : + 0.50
Difference ° CS : 6.00

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25

Check tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
 $U_{act} \text{ V}$: 2.710
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 141.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 2.710

Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.400
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113

Combination No. : 0 402 196 710

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67448

Customer-spec. information

Customer : DEERE
Motor : 6081AT002
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 7.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : + 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25

Check tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
 $U_{act} \text{ V}$: 2.880
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 140.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 3.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 2.880

Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.06.96
Test oil : ISO 4113

Combination No. : 0 402 196 705

Injection pump
Pump designation : PES6P120A720RS3347
EP type number : 0 412 026 777

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 63514

Customer-spec. information

Customer : DEERE
Motor : 6076 HRW35
Power KW : 181.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 10.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.710
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.400
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.06.96
Test oil : ISO 4113

Combination No. : 0 402 796 823

Injection pump
Pump designation : PES6P120A720RS7356
EP type number : 0 412 726 919

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 67884

Customer-spec. information

Customer : DEERE
Motor : 6081 HRW 05
Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 9.25
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference ° CS : 2.50

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position

(M pump)
 $U_{act} \text{ V}$: 0.720
Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
(M pump)

$U_{act} \text{ V}$: 4.500
Tolerance Volt : ± 0.115
 CRT mm : 19.00
Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 $U_{act} \text{ V}$: 3.030
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 213.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.120
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 237.0

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 798 800

Injection pump
Pump designation : PES8P120A920/4LS7293
EP type number : 0 412 728 807

Governor
Governor design. : RE30
Governor no. : 0 421 890 016

Cust. part No. : 313 GC 5208

Customer-spec. information

Customer : MACK
Motor : EE9-550
Power KW : 410.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H2O

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.20

Firing order : 1- 2- 7- 8- 4
: - 5- 6- 3

Phasing : 0-45-90-135-180
: -225-270-315

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	(M pump)
Setting point (P, R and H pump)		Uact V : 4,500 Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : + - 0.6 Check tolerance V : + - 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Rated speed rpm : 950 Uact V : 3.000 Del. quantity cm ³ /1000 strokes : 300.5 Tolerance cm ³ /1000 strokes : + - 1.0 Check tolerance cm ³ /1000S. : + - 4.0 Spread Tolerance cm ³ /1000 strokes : 7.0 Check tolerance cm ³ /1000S. : 11.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.35		Rated speed rpm : 700 Uact V : 2.990 Del. quantity cm ³ /1000 strokes : 339.5 Tolerance cm ³ /1000 strokes : + - 5.0 Check tolerance cm ³ /1000S. : + - 8.0 Spread Tolerance cm ³ /1000 strokes : 12.0 Check tolerance cm ³ /1000S. : 16.0
Stop position (M pump)		
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		
Starting position		

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.300
Tolerance Volt : \pm 0.060
Check tolerance Volt : \pm 0.070
Del. quantity cm³/1000 strokes : 27.0
Tolerance cm³/1000 strokes : \pm 3.0
Speed
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity cm³/1000 strokes : 180.0
Tolerance cm³/1000 strokes : \pm 15.0
Check tolerance cm³/1000S. : \pm 20.0
Speed
Tolerance cm³/1000 strokes : 40.0
Check tolerance cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 798 801

Injection pump
Pump designation : PES8P120A920/4LS7336
EP type number : 0 412 728 810

Governor
Governer design. : RE30
Governer no. : 0 421 890 016

Cust. part No. : 313 GC 5209

Customer-spec. information

Customer : MACK
Motor : E9-550
Power KW : 410.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.20

Firing order : 1- 2- 7- 8- 4
: - 5- 6- 3

Phasing : 0-45-90-135-180
: -225-270-315

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 2.950
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 339.5
Tolerance
cm³/1000 strokes : +/- 5.0
Check tolerance
cm³/1000S. : +/- 8.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.300
Tolerance Volt : + - 0.060
Check tolerance Volt : + - 0.070
Del. quantity cm³/1000 strokes : 27.0
Tolerance cm³/1000 strokes : + - 3.0
Spreed
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity cm³/1000 strokes : 180.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 20.0
Spreed
Tolerance cm³/1000 strokes : 40.0
Check tolerance cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 996 304

Injection pump
Pump designation : PES6P120A720RS8510
EP type number : 0 412 926 206

Governor
Governor design. : RE30
Governor no. : 0 421 890 023

Cust. part No. : 313 GC 5205 P3

Customer-spec. information

Customer : MACK
Motor : E7 450
Power KW : 331.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.210
Del. quantity
cm³/1000 strokes : 408.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.300
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 188.0
Tolerance
cm³/1000 strokes : + - 19.0
Check tolerance
cm³/1000S. : + - 22.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 996 305

Injection pump
Pump designation : PES6P120A720RS8512
EP type number : 0 412 926 207

Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5217 P1

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 413 359 008

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : ± 0.060
Check tolerance Volt : ± 0.070
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : ± 19.0
Check tolerance
cm³/1000S. : ± 22.0
Spread
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.09.95
Test oil : ISO 4113

Combination No. : 0 402 896 016

Injection pump
Pump designation : PE6P120A320RS8034
EP type number : 0 412 826 032

Governor
Governor design. : RE30
Governor no. : 0 421 890 028

Cust. part No. : 8194088 P03 rel 8/95

Customer-spec. information
Customer : VOLVO-TRUCK
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500

Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.800
Del. quantity
cm³/1000 strokes : 261.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 950
Uact V : 2.200
Del. quantity
cm³/1000 strokes : 181.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.07.96
Test oil : ISO 4113

Combination No. : 0 402 896 018

Injection pump
Pump designation : PE6P130A320RS8046
EP type number : 0 412 836 011

Governor
Governer design. : RE30
Governer no. : 0 421 890 030

Cust. part No. : 3826196 P01 v.02/96

Customer-spec. information

Customer : PENTA
Motor : TAMD 122 EDC
Power KW : 450.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 4.45
Tolerance mm : + - 0.05
Check tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + - 0.30
Check tolerance °NW : + - 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)		Tolerance Volt : + - 0,115
Uact V : 3.100	CRT mm : 13.00	Tolerance mm : + - 0,80
CRT mm : 13.00	Tolerance mm : + - 0,05	
Tolerance mm : + - 0,05		
Check tolerance mm : + - 0,10		
Check value (P, R and H pump)		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Uact V : 1.700		Test with control rod in stop position
CRT mm : 6.15		Engine speed min-1: 60
Tolerance mm : + - 0,25		Amplitude V : 1.4
Check tolerance mm : + - 0,30		Tolerance V : + - 0,6
Setting point (M pump)		Check tolerance V : + - 1,20
Uact V : 3.100		Engine speed min-1: 600
CRT mm : 12.50		Difference
Tolerance mm : + - 0,05		Amplitude to
Check tolerance mm : + - 0,10		Amplitude V : max.1.4
Check value (M pump)		
Uact V : 1.700		(C) INJECTION PUMP WITH POSITIONER
CRT mm : 5.50		TEST POINT V1
Tolerance mm : + - 0,25		Rated speed rpm : 600
Check tolerance mm : + - 0,30		Uact V : 2.900
Stop position (P, R and H pump)	: Value with deenergised adjusting magnet and control rod in stop position.	Del. quantity cm ³ /1000 strokes : 337.0
Uact V		Tolerance cm ³ /1000 strokes : + - 1.0
CRT mm	: 0.75	Check tolerance cm ³ /1000S. : + - 4.0
Tolerance mm	: + - 0,25	Spread
Check tolerance mm	: + - 0,35	Tolerance cm ³ /1000 strokes : 8.0
Stop position (M pump)		Check tolerance cm ³ /1000S. : 11.0
Uact V : 0,720		FUEL DELIVERY CHARACTERISTICS
Tolerance Volt : + - 0,065		
CRT mm : 1,00		Rated speed rpm : 1125
Starting position (M pump)		Uact V : 2.900
Uact V : 4,500		Del. quantity cm ³ /1000 strokes : 270.0

Rated speed rpm : 900
Uact V : 1.600
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : + - 4.0
Check tolerance
cm3/1000S. : + - 6.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : + - 3.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.08.96
Test oil : ISO 4113

Combination No. : 0 402 996 309

Injection pump
Pump designation : PE6P130A720RS8521
EP type number : 0 412 936 200

Governor
Governor design. : RE30
Governor no. : 0 421 890 032

Cust. part No. : 309 4436

Customer-spec. information

Customer : CUMMINS
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 4.30
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.29

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.00
Tolerance mm : + 1.50
Difference ° CS : 6.00

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75

Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : +/- 0,065
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : +/- 0,115
 CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
 Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min $^{-1}$: 600
Difference
Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.050
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 434.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: +/- 1.0
Check tolerance
 $\text{cm}^3/1000S.$: +/- 5.0
Spread

Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 10.0
Check tolerance
 $\text{cm}^3/1000S.$: 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
 $U_{act} \text{ V}$: 3.000

Del. quantity
cm³/1000 strokes : 441.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 12.0
Spread
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.280
Tolerance Volt : + - 0.060
Check tolerance Volt : + - 0.070
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : + - 19.0
Check tolerance
cm³/1000S. : + - 22.0
Spread
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.11.95
Test oil : ISO 4113

Combination No. : 0 402 196 708

Injection pump
Pump designation : PES6P120A720RS3362
EP type number : 0 412 026 787

Governor
Governor design. : RE30
Governor no. : 0 421 890 029

Cust. part No. : RE 64860

Customer-spec. information

Customer : DEERE
Motor : 6076ADW31
Power KW : 140.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 7.75
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : + 0.50
Difference ° CS : 3.25

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	(M pump)
Setting point (P, R and H pump)		Uact V : 4,500 Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30		Rated speed rpm : 1100 Uact V : 2.800 Del. quantity cm ³ /1000 strokes : 139.0 Tolerance cm ³ /1000 strokes : + - 1.0 Check tolerance cm ³ /1000S. : + - 4.0 Spread Tolerance cm ³ /1000 strokes : 5.0 Check tolerance cm ³ /1000S. : 9.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		<hr/> Rated speed rpm : 700 Uact V : 2.800 Del. quantity cm ³ /1000 strokes : 141.0 Tolerance cm ³ /1000 strokes : + - 3.0 Check tolerance cm ³ /1000S. : + - 6.0 Spread Tolerance cm ³ /1000 strokes : 8.0 Check tolerance cm ³ /1000S. : 12.0
CRT mm : 0.75 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.35		
Stop position (M pump)		
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		
Starting position		

Rated speed rpm : 425
Uact V : 1.580
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.580
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.10.96
Test oil : ISO 4113

Combination No. : 0 402 996 312

Injection pump
Pump designation : PES6P120A720RS8512
EP type number : -5
EP type number : 0 412 926 215

Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P1

Customer-spec. information

Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 3 413 359 008

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Det. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Det. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Rated speed rpm : 325
Uact V : 1.310
Uact V : 1.310
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.070
Del. quantity
cm³/1000 strokes : 33.0
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 3.0
Tolerance
cm³/1000 strokes : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : ± 19.0
Check tolerance
cm³/1000S. : ± 22.0
Spread
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.96
Test oil : ISO 4113

Combination No. : 0 402 896 014

Injection pump
Pump designation : PE6P120A720RS8029
EP type number : 0 412 826 028

Governor
Governor design. : RE30
Governor no. : 0 421 890 021

Cust. part No. : 1361126

Customer-spec. information

Customer : SCANIA
Motor : DSC1124

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.500
Del. quantity
cm³/1000 strokes : 340.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900
Uact V : 3.500
Del. quantity
cm³/1000 strokes : 309.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.640
Tolerance Volt : + \pm 0.060
Check tolerance
Volt : + \pm 0.060
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : + \pm 3.0
Spred
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + \pm 20.0
Check tolerance
cm³/1000S. : + \pm 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.10.96
Test oil : ISO 4113

Combination No. : 0 402 796 037

Injection pump
Pump designation : PES6H110/320RS13
EP type number : 0 412 716 003

Governor
Governor design. : RE36
Governor no. : 0 421 890 363

Cust. part No. : 51.11103-7482

Customer-spec. information

Customer : MAN
Motor : D0826 LF13/LFL09
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 8.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 850
 $U_{act} \text{ V}$: 2.490
Prestroke solenoid
Stroke mm : 11.10
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0

Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
 $U_{act} \text{ V}$: 1.580

Prestroke solenoid
Stroke mm : 7.70
Del. quantity
cm3/1000 strokes : 95.0
Check tolerance
cm3/1000S. : + - 8.0
Spred
Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 1150
Uact V : 2.440
Prestroke solenoid
Stroke mm : 9.30
Del. quantity
cm3/1000 strokes : 206.0
Tolerance
cm3/1000 strokes : + - 6.0
Check tolerance
cm3/1000S. : + - 10.0

Rated speed rpm : 600
Uact V : 2.220
Prestroke solenoid
Stroke mm : 12.10
Del. quantity
cm3/1000 strokes : 207.0
Tolerance
cm3/1000 strokes : + - 6.0
Check tolerance
cm3/1000S. : + - 10.0

Rated speed rpm : 500
Uact V : 1.750
Prestroke solenoid
Stroke mm : 9.80
Del. quantity
cm3/1000 strokes : 135.0
Tolerance
cm3/1000 strokes : + - 5.0
Check tolerance
cm3/1000S. : + - 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.310
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Prestroke solenoid
Stroke mm : 11.10
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : + - 3.0
Spred

Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.050
Prestroke solenoid
Stroke mm : 5.50
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + - 8.0
Check tolerance
cm3/1000S. : + - 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.10.96
Test oil : ISO 4113

Combination No. : 0 402 796 039

Injection pump
Pump designation : PES6H110/320RS13-1
EP type number : 0 412 716 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 363

Cust. part No. : 51.11103-7529

Customer-spec. information

Customer : MAN
Motor : D0826 LF13/LFL09
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet Line : 3-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 8.00
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position

(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)

$U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 $Amplitude \text{ V}$: 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 $Amplitude \text{ V}$: max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 850
 $U_{act} \text{ V}$: 2.490
Prestroke solenoid
Stroke mm : 11.10
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0

Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800
 $U_{act} \text{ V}$: 1.580

Prestroke solenoid
Stroke mm : 7.70
Del. quantity
cm3/1000 strokes : 95.0
Check tolerance
cm3/1000S. : + 8.0
Speed
Check tolerance
cm3/1000S. : 7.0

Rated speed rpm : 1150
Uact V : 2.440
Prestroke solenoid
Stroke mm : 9.30
Del. quantity
cm3/1000 strokes : 206.0
Tolerance
cm3/1000 strokes : + 6.0
Check tolerance
cm3/1000S. : + 10.0

Rated speed rpm : 600
Uact V : 2.220
Prestroke solenoid
Stroke mm : 12.10
Del. quantity
cm3/1000 strokes : 207.0
Tolerance
cm3/1000 strokes : + 6.0
Check tolerance
cm3/1000S. : + 10.0

Rated speed rpm : 500
Uact V : 1.750
Prestroke solenoid
Stroke mm : 9.80
Del. quantity
cm3/1000 strokes : 135.0
Tolerance
cm3/1000 strokes : + 5.0
Check tolerance
cm3/1000S. : + 9.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.310
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 11.10
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : + 3.0
Speed

Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.050
Prestroke solenoid
Stroke mm : 5.50
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + 8.0
Check tolerance
cm3/1000S. : + 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.96
Test oil : ISO 4113

Combination No. : 0 402 698 033

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number : 0 412 628 003

Governor
Governor design. : RE36
Governor no. : 0 421 890 359

Cust. part No. : 0250745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 7.00
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Start of delivery mark

Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 341.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 328.0
Tolerance
cm³/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : + 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 348.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Rated speed rpm : 630
Uact V : 2.000
Prestroke solenoid
Stroke mm : 5.30
Del. quantity
cm³/1000 strokes : 201.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.96
Test oil : ISO 4113

Combination No. : 0 401 496 003

Injection pump
Pump designation : PE6R120/720RS1504
EP type number : 0 411 426 003

Governor
Governor design. : RE31
Governor no. : 0 421 890 200

Cust. part No. : 1556415
: -P10v20.11.96

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 164
Power KW : 382.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 0.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

		tolerance mm : +/- 0.35
(B) POSITIONER TESTING		
Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V		
TESTING & SETTING RACK TRAVEL SENSOR POSITION		
Engine speed min-1: 0		
Setting point (P, R and H pump)		
Uact V : 3.100		
CRT mm : 13.00		
Tolerance mm : +/- 0.05		
Check tolerance mm : +/- 0.10		
Check value (P, R and H pump)		
Uact V : 1.700		
CRT mm : 6.15		
Tolerance mm : +/- 0.25		
Check tolerance mm : +/- 0.30		
Setting point (M pump)		
Uact V : 3.100		
CRT mm : 12.50		
Tolerance mm : +/- 0.05		
Check tolerance mm : +/- 0.10		
Check value (M pump)		
Uact V : 1.700		
CRT mm : 5.50		
Tolerance mm : +/- 0.25		
Check tolerance mm : +/- 0.30		
Stop position (P, R and H pump)		
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		
CRT mm : 0.75		
Tolerance mm : +/- 0.25		
Check		
		Stop position (M pump)
		Uact V : 0,720
		Tolerance Volt : +/- 0,065
		CRT mm : 1,00
		Starting position (M pump)
		Uact V : 4,500
		Tolerance Volt : +/- 0,115
		CRT mm : 19,00
		Tolerance mm : +/- 0,80
		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
		Test with control rod in stop position
		Engine speed min-1: 60
		Amplitude V : 1.4
		Tolerance V : +/- 0.6
		Check tolerance V : +/- 1.20
		Engine speed min-1: 600
		Difference Amplitude to Amplitude V : max.1.4
		(C) INJECTION PUMP WITH POSITIONER
		TEST POINT V1
		Rated speed rpm : 525
		Uact V : 2.950
		Del. quantity cm ³ /1000 strokes : 390.0
		Tolerance cm ³ /1000 strokes : +/- 1.0
		Check tolerance cm ³ /1000S. : +/- 4.0
		Spread Tolerance cm ³ /1000 strokes : 6.0
		Check tolerance cm ³ /1000S. : 10.0
		FUEL DELIVERY CHARACTERISTICS
		Rated speed rpm : 900
		Uact V : 3.240
		Del. quantity cm ³ /1000 strokes : 386.0

Tolerance
cm³/1000 strokes : +— 3.0
Check tolerance
cm³/1000S. : +— 6.0
Speed
Tolerance
cm³/1000 strokes : 9.0
Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 900
Uact V : 2.000
Del. quantity
cm³/1000 strokes : 163.0
Tolerance
cm³/1000 strokes : +— 3.0
Check tolerance
cm³/1000S. : +— 6.0

TEST POINT L1

Rated speed rpm : 265
Rated speed rpm : 265
Uact V : 1.630
Uact V : 1.630
Tolerance Volt : +— 0.060
Check tolerance
Volt : +— 0.060
Del. quantity
cm³/1000 strokes : 19.0
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +— 3.0
Tolerance
cm³/1000 strokes : +— 3.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.96
Test oil : ISO 4113

Combination No. : 0 402 798 201

Injection pump
Pump designation : PES8H120/720LS1003
EP type number : 0 412 728 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 358

Cust. part No. : 1364711

Customer-spec. information

Customer : SCANIA
Motor : DSC 1413
Power KW : 390.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 8.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.150
Prestroke solenoid
Stroke mm : 7.60
Del. quantity
cm³/1000 strokes : 344.5
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.450
Prestroke solenoid
Stroke mm : 8.20
Del. quantity
cm³/1000 strokes : 365.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 7.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Combination No. : 0 402 795 203

Injection pump
Pump designation : PES5H120/720/3LS1004
EP type number : 0 412 725 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7476

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 09
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + - 1.0

Prestroke mm : 7.65
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Prestroke mm : 10.00
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Start of delivery blocking

Tolerance : + - 0.10

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
 CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
 CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
 $U_{act} \text{ V}$: 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 332.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: ± 4.0

Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 5.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
 $U_{act} \text{ V}$: 1.450

Prestroke solenoid
 Stroke mm : 10.00
 Del. quantity
 cm3/1000 strokes : 74.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0
 Spread
 Tolerance
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 8.0

Rated speed rpm : 1000
 Uact V : 3.290
 Prestroke solenoid
 Stroke mm : 8.00
 Del. quantity
 cm3/1000 strokes : 312.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0

Rated speed rpm : 500
 Uact V : 2.900
 Prestroke solenoid
 Stroke mm : 9.20
 Del. quantity
 cm3/1000 strokes : 306.0
 Tolerance
 cm3/1000 strokes : \pm 5.0
 Check tolerance
 cm3/1000S. : \pm 9.0

Rated speed rpm : 500
 Uact V : 2.100
 Prestroke solenoid
 Stroke mm : 6.20
 Del. quantity
 cm3/1000 strokes : 175.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.500
 Tolerance Volt : \pm 0.060
 Check tolerance
 Volt : \pm 0.080
 Prestroke solenoid
 Stroke mm : 7.20

Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 strokes : \pm 3.0
 Spread
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Uact V : 2.450
 Prestroke solenoid
 Stroke mm : 7.00
 Del. quantity
 cm3/1000 strokes : 182.0
 Tolerance
 cm3/1000 strokes : \pm 10.0
 Check tolerance
 cm3/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Combination No. : 0 402 796 202

Injection pump
Pump designation : PES6H120/720/3LS1005
EP type number : 0 412 726 202

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7477

Customer-spec. information

Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

Tolerance : + 0.10

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)
Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450

Prestroke solenoid
 Stroke mm : 10.00
 Del. quantity
 cm3/1000 strokes : 74.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0
 Spred
 Tolerance
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 8.0

Rated speed rpm : 1000
 Uact V : 3.290
 Prestroke solenoid
 Stroke mm : 8.00
 Del. quantity
 cm3/1000 strokes : 312.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0

Rated speed rpm : 500
 Uact V : 2.900
 Prestroke solenoid
 Stroke mm : 9.20
 Del. quantity
 cm3/1000 strokes : 306.0
 Tolerance
 cm3/1000 strokes : \pm 5.0
 Check tolerance
 cm3/1000S. : \pm 9.0

Rated speed rpm : 500
 Uact V : 2.100
 Prestroke solenoid
 Stroke mm : 6.20
 Del. quantity
 cm3/1000 strokes : 175.0
 Tolerance
 cm3/1000 strokes : \pm 4.0
 Check tolerance
 cm3/1000S. : \pm 8.0

TEST POINT L1

Rated speed rpm : 300
 Uact V : 1.500
 Tolerance Volt : \pm 0.060
 Check tolerance
 Volt : \pm 0.080
 Prestroke solenoid
 Stroke mm : 7.20

Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 strokes : \pm 3.0
 Spred
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Uact V : 2.450
 Prestroke solenoid
 Stroke mm : 7.00
 Del. quantity
 cm3/1000 strokes : 182.0
 Tolerance
 cm3/1000 strokes : \pm 10.0
 Check tolerance
 cm3/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.95
Test oil : ISO 4113

Combination No. : 0 402 796 203

Injection pump
Pump designation : PES6H120/720/3LS1006
EP type number : 0 412 726 203

Governor
Governor design. : RE33
Governor no. : 0 421 890 365

Cust. part No. : 51.111103-7479

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 21
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6-2-4-1-5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	Uact V : 4,500
Setting point (P, R and H pump)		Tolerance Volt : + - 0,115
Uact V : 3.100		CRT mm : 19,00
CRT mm : 13.00		Tolerance mm : + - 0,80
Tolerance mm : +/- 0.05		
Check tolerance mm : +/- 0.10		
Check value (P, R and H pump)		ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps)
Uact V : 1.700		
CRT mm : 6.15		Test with control rod in stop position
Tolerance mm : +/- 0.25		
Check tolerance mm : +/- 0.30		Engine speed min-1: 60
Setting point (M pump)		Amplitude V : 1.4
Uact V : 3.100		Tolerance V : +/- 0.6
CRT mm : 12.50		Check tolerance V : +/- 1.20
Tolerance mm : +/- 0.05		
Check tolerance mm : +/- 0.10		Engine speed min-1: 600
Check value (M pump)		Difference Amplitude to Amplitude V : max.1.4
Uact V : 1.700		
CRT mm : 5.50		
Tolerance mm : +/- 0.25		
Check tolerance mm : +/- 0.30		
Stop position (P, R and H pump)		
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		(C) INJECTION PUMP WITH POSITIONER
CRT mm : 0.75		
Tolerance mm : +/- 0.25		TEST POINT V1
Check tolerance mm : +/- 0.35		
Stop position (M pump)		Rated speed rpm : 750
Uact V : 0,720		Uact V : 3.350
Tolerance Volt : + - 0,065		Prestroke solenoid
CRT mm : 1,00		Stroke mm : 10.00
Starting position (M pump)		Del. quantity cm3/1000 strokes : 332.0
		Tolerance cm3/1000 strokes : + - 1.0
		Check tolerance cm3/1000S. : + - 4.0
		Spread Tolerance cm3/1000 strokes : 5.0
		Check tolerance cm3/1000S. : 9.0
		FUEL DELIVERY CHARACTERISTICS
		Rated speed rpm : 750
		Uact V : 1.450
		Prestroke solenoid
		Stroke mm : 10.00
		Del. quantity cm3/1000 strokes : 74.0
		Tolerance cm3/1000 strokes : + - 4.0
		Check tolerance cm3/1000S. : + - 8.0
		Spread

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 317.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 307.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 9.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.12.95
Test oil : ISO 4113

Combination No. : 0 402 796 819

Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955

Governor
Governor design. : RE30
Governor no. : 0 421 890 037

Cust. part No. : RE 65679

Customer-spec. information

Customer : DEERE
Motor : 6101HRW10
Power KW : 266.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 9.25
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 15.00
Difference ° CS : 3.75

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check

tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min $^{-1}$: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER**TEST POINT V1**

Rated speed rpm : 1050
Uact V : 3.030
Del. quantity
cm 3 /1000 strokes : 213.0
Tolerance
cm 3 /1000 strokes : +/- 1.0
Check tolerance
cm 3 /1000S. : +/- 4.0
Spread
Tolerance
cm 3 /1000 strokes : 5.0
Check tolerance
cm 3 /1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 3.120
Del. quantity
cm 3 /1000 strokes : 237.0

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + - 20.0
Check tolerance
cm³/1000S. : + - 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 402 795 802

Injection pump
Pump designation : PES5P120A720/3LS7397
EP type number : 0 412 725 823

Governor
Governor design. : RE30
Governor no. : 0 421 890 035

Cust. part No. : 51.11103-7486

Customer-spec. information

Customer : MAN
Motor : D2865 LUH08/LF10
Power KW : 235.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	(M pump)
Setting point (P, R and H pump)		Uact V : 4,500 Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : + - 0.6 Check tolerance V : + - 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Rated speed rpm : 750 Uact V : 3.100 Del. quantity cm ³ /1000 strokes : 285.0 Tolerance cm ³ /1000 strokes : + - 1.0 Check tolerance cm ³ /1000S. : + - 4.0 Spread Tolerance cm ³ /1000 strokes : 5.0 Check tolerance cm ³ /1000S. : 9.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.35		Rated speed rpm : 1000 Uact V : 3.120 Del. quantity cm ³ /1000 strokes : 266.0 Tolerance cm ³ /1000 strokes : + - 3.0 Check tolerance cm ³ /1000S. : + - 6.0
Stop position (M pump)		<hr/>
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		Rated speed rpm : 750 Uact V : 1.470
Starting position		

Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0
Speed
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 402 795 803

Injection pump
Pump designation : PES5P120A720/3LS7418
EP type number : 0 412 725 824

Governor
Governer design. : RE30
Governer no. : 0 421 890 039

Cust. part No. : 51.11103-7511

Customer-spec. information

Customer : MAN
Motor : D 2865 LF 24
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm³/1000 strokes : 271.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470

Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0
Speed
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 402 795 804

Injection pump
Pump designation : PES5P120A720LS7434
EP type number : 0 412 725 825

Governor
Governor design. : RE30
Governor no. : 0 421 890 042

Cust. part No. : 51.11103-7557

Customer-spec. information

Customer : MAN
Motor : D 2865 LUH 09
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V**TESTING & SETTING RACK TRAVEL SENSOR
POSITION**

Engine speed min-1:	0	(M pump)
Setting point (P, R and H pump)		Uact V : 4,500 Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : + - 0.6 Check tolerance V : + - 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		<hr/> (C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Rated speed rpm : 750 Uact V : 3.100 Del. quantity cm ³ /1000 strokes : 271.0 Tolerance cm ³ /1000 strokes : + - 1.0 Check tolerance cm ³ /1000S. : + - 4.0 Spread Tolerance cm ³ /1000 strokes : 5.0 Check tolerance cm ³ /1000S. : 9.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.35		Rated speed rpm : 1000 Uact V : 3.120 Del. quantity cm ³ /1000 strokes : 252.0 Tolerance cm ³ /1000 strokes : + - 3.0 Check tolerance cm ³ /1000S. : + - 6.0
Stop position (M pump)		<hr/>
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		Rated speed rpm : 750 Uact V : 1.470
Starting position		

Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0
Spred
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 402 796 822

Injection pump
Pump designation : PES6P120A720/3LS7417
EP type number : 0 412 726 960

Governor
Governor design. : RE30
Governor no. : 0 421 890 039

Cust. part No. : 51.11103-7480

Customer-spec. information
Customer : MAN
Motor : D 2866 LOH 25
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity cm3/1000 strokes : 271.0
Tolerance cm3/1000 strokes : +/- 1.0
Check tolerance cm3/1000S. : +/- 4.0
Spread
Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity cm3/1000 strokes : 252.0
Tolerance cm3/1000 strokes : +/- 3.0
Check tolerance cm3/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0
Speed
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 402 796 824

Injection pump
Pump designation : PES6P120A720LS7433
EP type number : 0 412 726 968

Governor
Governor design. : RE30
Governor no. : 0 421 890 042

Cust. part No. : 51.11103-7556

Customer-spec. information

Customer : MAN
Motor : D 2866 LUH 20
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.100
Del. quantity cm³/1000 strokes : 271.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.120
Del. quantity cm³/1000 strokes : 252.0
Tolerance cm³/1000 strokes : +/- 3.0
Check tolerance cm³/1000S. : +/- 6.0

Rated speed rpm : 750
Uact V : 1.470
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + - 5.0
Check tolerance
cm³/1000S. : + - 9.0
Spred
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 1.950
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.470
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : + - 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 798 804

Injection pump
Pump designation : PES8P120A920/4LS7392
EP type number : 0 412 728 813

Governor
Governor design. : RE30
Governor no. : 0 421 890 034

Cust. part No. : 313 GC 5209P2

Customer-spec. information

Customer : MACK
Motor : EA9-600
Power KW : 447.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.20

Firing order : 1- 2- 7- 8- 4
: - 5- 6- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 2.950
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 339.5
Tolerance
cm³/1000 strokes : +/- 5.0
Check tolerance
cm³/1000S. : +/- 8.0
Spread

Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.340
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.070
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 20.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 896 310

Injection pump
Pump designation : PES6P130A320RS8522
EP type number : 0 412 936 201

Governor
Governer design. : RE30
Governer no. : 0 421 890 033

Cust. part No. : 309 4435

Customer-spec. information

Customer : CUMMINS
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 25.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.00
Tolerance mm : +/- 1.50
Difference ° CS : 6.00

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with

deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
 $Amplitude \text{ V}$: 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
 $Amplitude \text{ V}$: max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.050
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 425.5

Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: +/- 1.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: +/- 5.0

Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 10.0
Check tolerance
 $\text{cm}^3/1000\text{s.}$: 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 434.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 12.0
Spred
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.280
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.070
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : ± 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 19.0
Check tolerance
cm³/1000S. : ± 22.0
Spred
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.96
Test oil : ISO 4113

Combination No. : 0 402 698 806

Injection pump
Pump designation : PE8P120A720LS7331
: -10
EP type number : 0 412 628 896

Governor
Governor design. : RE30
Governor no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information
Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)

$U_{act} \text{ V}$: 0.720
Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
(M pump)

$U_{act} \text{ V}$: 4.500
Tolerance Volt : ± 0.115
 CRT mm : 19.00
Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
 Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
 Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + - 0.060
Check tolerance Volt : + - 0.060
Del. quantity cm³/1000 strokes : 16.0
Tolerance cm³/1000 strokes : + - 3.0
Speed
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.05.94
Test oil : ISO 4113

Combination No. : 0 402 795 201

Injection pump
Pump designation : PES5H120/720/3LS1002
EP type number : 0 412 725 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. :

Customer-spec. information

Customer : MAN
Motor : D2865LF09

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 9.99
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.15
Check tolerance °NW : + 0.30

Start of delivery blocking

Tolerance : + 0.10

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point (P, R and H pump)		Tolerance Volt : + - 0,115 CRT mm : 19,00 Tolerance mm : + - 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : + - 0.6 Check tolerance V : + - 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : + - 0.05 Check tolerance mm : + - 0.10		(C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.30		Rated speed rpm : 750 Uact V : 3.350 Prestroke solenoid Stroke mm : 10.00 Del. quantity cm3/1000 strokes : 332.0 Tolerance cm3/1000 strokes : + - 1.0 Check tolerance cm3/1000S. : + - 4.0 Spread Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000S. : 9.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position. CRT mm : 0.75 Tolerance mm : + - 0.25 Check tolerance mm : + - 0.35		Rated speed rpm : 1000 Uact V : 3.290 Prestroke solenoid Stroke mm : 8.00 Del. quantity cm3/1000 strokes : 309.0 Check tolerance cm3/1000S. : + - 6.0 Spread Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. : 12.0
Stop position (M pump)		
Uact V : 0,720 Tolerance Volt : + - 0,065 CRT mm : 1,00		
Starting position (M pump)		
Uact V : 4,500		

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 65.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0
Check tolerance
cm³/1000S. : + 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.96
Test oil : ISO 4113

Combination No. : 0 402 795 202

Injection pump
Pump designation : PES5H120/720/3LS1002
: -1
EP type number : 0 412 725 202

Governor
Governer design. : RE33
Governer no. : 0 421 890 362

Cust. part No. : 51.111103-7408

Customer-spec. information

Customer : MAN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 9.99
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 5

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	Uact V : 4,500
Setting point (P, R and H pump)		Tolerance Volt : + - 0,115
Uact V : 3.100		CRT mm : 19,00
CRT mm : 13,00		Tolerance mm : + - 0,80
Tolerance mm : +/- 0,05		
Check tolerance mm : +/- 0,10		
Check value (P, R and H pump)		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Uact V : 1.700		
CRT mm : 6,15		Test with control rod in stop position
Tolerance mm : +/- 0,25		
Check tolerance mm : +/- 0,30		Engine speed min-1: 60
Setting point (M pump)		Amplitude V : 1,4
Uact V : 3.100		Tolerance V : +/- 0,6
CRT mm : 12,50		Check tolerance V : +/- 1,20
Tolerance mm : +/- 0,05		
Check tolerance mm : +/- 0,10		Engine speed min-1: 600
Check value (M pump)		Difference
Uact V : 1.700		Amplitude to
CRT mm : 5,50		Amplitude V : max.1,4
Tolerance mm : +/- 0,25		
Check tolerance mm : +/- 0,30		
Stop position (P, R and H pump)		
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		(C) INJECTION PUMP WITH POSITIONER
CRT mm : 0,75		
Tolerance mm : +/- 0,25		TEST POINT V1
Check tolerance mm : +/- 0,35		
Stop position (M pump)		Rated speed rpm : 750
Uact V : 0,720		Uact V : 3.350
Tolerance Volt : + - 0,065		Prestroke solenoid
CRT mm : 1,00		Stroke mm : 10,00
Starting position (M pump)		Del. quantity cm ³ /1000 strokes : 332,0
		Tolerance cm ³ /1000 strokes : + - 1,0
		Check tolerance cm ³ /1000S. : + - 4,0
		Spread
		Tolerance cm ³ /1000 strokes : 5,0
		Check tolerance cm ³ /1000S. : 9,0
		FUEL DELIVERY CHARACTERISTICS
		Rated speed rpm : 1000
		Uact V : 3.290
		Prestroke solenoid
		Stroke mm : 8,00
		Del. quantity cm ³ /1000 strokes : 309,0
		Tolerance cm ³ /1000 strokes : + - 4,0
		Check tolerance cm ³ /1000S. : + - 8,0
		Spread

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 7.20

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.04.94
Test oil : ISO 4113

Combination No. : 0 402 796 201

Injection pump
Pump designation : PES6H120/720/3LS1001
EP type number : 0 412 726 201

Governor
Governor design. : RE33
Governor no. : 0 421 890 354

Cust. part No. :

Customer-spec. information

Customer : MAN
Motor : D2866LF14

TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 9.99
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.15
Check
tolerance °NW : + 0.30

Start of delivery blocking

Tolerance : + 0.10

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 309.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000S. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Check tolerance
cm³/1000S. : + - 6.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Check tolerance
cm³/1000S. : + - 6.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 65.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 173.0

Check tolerance
cm³/1000S. : + - 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 996 309

Injection pump
Pump designation : PES6P130A720RS8521
EP type number : 0 412 936 200

Governor
Governor design. : RE30
Governor no. : 0 421 890 032

Cust. part No. : 309 4436

Customer-spec. information

Customer : CDC
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.00
Tolerance mm : + 1.50

Difference ° CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)
Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity cm³/1000 strokes : 425.5
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 5.0
Spread
Tolerance cm³/1000 strokes : 10.0
Check tolerance cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750

Uact V : 3.000
Del. quantity
cm³/1000 strokes : 434.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 12.0
Speed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.280
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.070
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + - 19.0
Check tolerance
cm³/1000S. : + - 22.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F1

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :

Governor
Governor design. : RE36 (FD 57102 - FD
: 57108)
Governor no. :

Cust. part No. : 0250745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 347.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 334.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 354.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F2

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :

Governor
Governor design. : RE36 (FD 57109 - FD
: 66213)
Governor no. :

Cust. part No. : 0250745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 336.0

Tolerance
cm3/1000 strokes : + - 4.0
Check tolerance
cm3/1000S. : + - 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm3/1000 strokes : 357.0
Tolerance
cm3/1000 strokes : + - 4.0
Check tolerance
cm3/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 strokes : + - 3.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm3/1000 strokes : 117.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 033F3

Injection pump
Pump designation : PE8H120/320LS3-2
EP type number :

Governor
Governer design. : RE36 (FD 66214 - FD
: 66231)
Governer no. :

Cust. part No. : 0250745602

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 8

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position

(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 344.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 331.0

Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 351.0
Tolerance
cm³/1000 strokes : + - 4.0
Check tolerance
cm³/1000S. : + - 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 20.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.97
Test oil : ISO 4113

Combination No. : 0 402 698 804

Injection pump
Pump designation : PE8P120A720LS7205
: -10
EP type number : 0 412 628 895

Governor
Governor design. : RE30
Governor no. : 0 421 890 007

Cust. part No. : 1328039

Customer-spec. information

Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
cm 3 /1000 strokes : 248.0
Tolerance
cm 3 /1000 strokes : ± 1.0
Check tolerance
cm 3 /1000S. : ± 4.0
Spread
Tolerance
cm 3 /1000 strokes : 8.0
Check tolerance
cm 3 /1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
cm 3 /1000 strokes : 224.0

Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + 0.060
Check tolerance Volt : + 0.060
Del. quantity cm³/1000 strokes : 16.0
Tolerance cm³/1000 strokes : + 3.0
Spred
Tolerance cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113

Combination No. : 0 402 696 033

Injection pump
Pump designation : PE6H120/320LS4-2
EP type number : 0 412 626 003

Governor
Governor design. : RE36
Governor no. : 0 421 890 359

Cust. part No. : 0250745502

Customer-spec. information

Customer : MB-NFZ
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 375.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm³/1000 strokes : 339.0
Tolerance
cm³/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : + 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : + 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113

Combination No. : 0 402 796 033

Injection pump
Pump designation : PES6H120/720LS7
EP type number : 0 412 726 004

Governor
Governor design. : RE36
Governor no. : 0 421 890 360

Cust. part No. : 0250745702

Customer-spec. information

Customer : MB-NFZ
Motor : OM 447 LA

TEST BENCH REQUIREMENTS

Inlet Line : 3.2 EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800
Uact V : 2.650
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1100
Uact V : 2.750
Prestroke solenoid
Stroke mm : 6.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : +/- 5.0

Check tolerance
cm³/1000S. : + - 8.0

Rated speed rpm : 550
Uact V : 2.350
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : + - 8.0
Check tolerance
cm³/1000S. : + - 11.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.440
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 9.00
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : + - 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.96
Test oil : ISO 4113

Combination No. : 0 402 796 204

Injection pump
Pump designation : PES6H120/720/3LS1005
: -1
EP type number : 0 412 726 204

Governor
Governor design. : RE33
Governor no. : 0 421 890 364

Cust. part No. : 51.11103-7539

Customer-spec. information
Customer : MAN
Motor : D 2866 LF 16
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 10.00
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check tolerance °NW : + 0.75

Barrel no. : 6

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 328.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + 8.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 1000

Uact V : 3.290

Prestroke solenoid

Stroke mm : 8.00

Del. quantity
cm³/1000 strokes : 310.0

Tolerance
cm³/1000 strokes : + 4.0

Check tolerance
cm³/1000S. : + 8.0

Rated speed rpm : 500

Uact V : 2.900

Prestroke solenoid

Stroke mm : 9.20

Del. quantity
cm³/1000 strokes : 303.0

Tolerance
cm³/1000 strokes : + 5.0

Check tolerance
cm³/1000S. : + 9.0

Rated speed rpm : 500

Uact V : 2.100

Prestroke solenoid

Stroke mm : 6.20

Del. quantity
cm³/1000 strokes : 174.0

Tolerance
cm³/1000 strokes : + 4.0

Check tolerance
cm³/1000S. : + 8.0

TEST POINT L1

Rated speed rpm : 300

Uact V : 1.500

Tolerance Volt : + 0.060

Check tolerance
Volt : + 0.080

Prestroke solenoid

Stroke mm : 7.20

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : + 3.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Uact V : 2.450

Prestroke solenoid

Stroke mm : 7.00

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : + 10.0

Check tolerance
cm³/1000S. : + 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.97
Test oil : ISO 4113

Combination No. : 0 402 798 201

Injection pump
Pump designation : PES8H120/720LS1009
EP type number : 0 412 728 202

Governor
Governer design. : RE33
Governer no. : 0 421 890 368

Cust. part No. : 1364711

Customer-spec. information

Customer : SCANIA
Motor : DSC 1413/15
Power KW : 390.0

TEST BENCH REQUIREMENTS

Inlet Line : 4(EHAB)

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 8.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.150
Prestroke solenoid
Stroke mm : 7.60
Del. quantity
cm³/1000 strokes : 344.5
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.450
Prestroke solenoid
Stroke mm : 8.20
Del. quantity
cm³/1000 strokes : 365.0
Tolerance
cm³/1000 strokes : +/- 4.0

Check tolerance
cm³/1000S. : + - 7.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.400
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.97
Test oil : ISO 4113

Combination No. : 0 402 798 803

Injection pump
Pump designation : PES8P120A920/4LS7336
EP type number : 0 412 728 813

Governor
Governor design. : RE30
Governor no. : 0 421 890 034

Cust. part No. : 313 GC 5209

Customer-spec. information

Customer : MACK
Motor : E9-550
Power KW : 410.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 3.30
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.20

Firing order : 1- 2- 7- 8- 4
: - 5- 6- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 2.950
Del. quantity cm³/1000 strokes : 303.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 7.0
Check tolerance cm³/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 2.880
Del. quantity cm³/1000 strokes : 339.5
Tolerance cm³/1000 strokes : +/- 5.0
Check tolerance cm³/1000S. : +/- 8.0
Spread

Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.340
Tolerance Volt : ± 0.060
Check tolerance Volt : ± 0.070
Del. quantity cm³/1000 strokes : 27.0
Tolerance cm³/1000 strokes : ± 3.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity cm³/1000 strokes : 185.0
Tolerance cm³/1000 strokes : ± 15.0
Check tolerance cm³/1000S. : ± 20.0
Spread
Tolerance cm³/1000 strokes : 40.0
Check tolerance cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.96
Test oil : ISO 4113

Combination No. : 0 402 996 306

Injection pump
Pump designation : PES6P120A720RS8512
: -1
EP type number : 0 412 926 209

Governor
Governor design. : RE30
Governor no. : 0 421 890 023

Cust. part No. : 313 GC 5217 P3

Customer-spec. information

Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm³/1000 strokes : 392.0
Tolerance
cm³/1000 strokes : +/- 10.0
Check tolerance
cm³/1000S. : +/- 12.0
Spread

Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.070
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : ± 19.0
Check tolerance
cm³/1000S. : ± 22.0
Spread
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.10.96
Test oil : ISO 4113

Combination No. : 0 402 996 311

Injection pump
Pump designation : PES6P120A720RS8512
: -4
EP type number : 0 412 926 214

Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information
Customer : MACK
Motor : E7

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 3 413 359 008

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min-1:	0	(M pump)
Setting point (P, R and H pump)		Uact V : 4,500 Tolerance Volt : +/- 0,115 CRT mm : 19,00 Tolerance mm : +/- 0,80
Uact V : 3.100 CRT mm : 13.00 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10		ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)
Check value (P, R and H pump)		Test with control rod in stop position
Uact V : 1.700 CRT mm : 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30		Engine speed min-1: 60 Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : +/- 1.20
Setting point (M pump)		Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4
Uact V : 3.100 CRT mm : 12.50 Tolerance mm : +/- 0.05 Check tolerance mm : +/- 0.10		(C) INJECTION PUMP WITH POSITIONER
Check value (M pump)		TEST POINT V1
Uact V : 1.700 CRT mm : 5.50 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30		Rated speed rpm : 900 Uact V : 3.050 Del. quantity cm ³ /1000 strokes : 310.0 Tolerance cm ³ /1000 strokes : +/- 1.0 Check tolerance cm ³ /1000S. : +/- 5.0 Spread Tolerance cm ³ /1000 strokes : 8.0 Check tolerance cm ³ /1000S. : 14.0
Stop position (P, R and H pump)		FUEL DELIVERY CHARACTERISTICS
Uact V : Value with deenergised adjusting magnet and control rod in stop position.		Rated speed rpm : 625 Uact V : 3.260 Del. quantity cm ³ /1000 strokes : 392.0 Tolerance cm ³ /1000 strokes : +/- 10.0 Check tolerance cm ³ /1000S. : +/- 12.0 Spread Tolerance cm ³ /1000 strokes : 16.0 Check tolerance cm ³ /1000S. : 18.0
CRT mm : 0.75 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.35		
Stop position (M pump)		
Uact V : 0,720 Tolerance Volt : +/- 0,065 CRT mm : 1,00		
Starting position		

TEST POINT L1

Rated speed rpm : 325
Rated speed rpm : 325
Uact V : 1.310
Uact V : 1.310
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.070
Del. quantity
cm³/1000 strokes : 33.0
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 3.0
Tolerance
cm³/1000 strokes : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 14.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 19.0
Check tolerance
cm³/1000S. : \pm 22.0
Spreed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.97
Test oil : ISO 4113

Combination No. : 0 402 690 801

Injection pump
Pump designation : PE12P120A520LS7907
EP type number : 0 412 620 849

Governor
Governor design. : RE30
Governor no. : 0 421 890 041

Cust. part No. : 0260745202

Customer-spec. information

Customer : MTU
Motor : 12V183TE52K
Power KW : 846.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1/3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 12

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
 CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
 CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.
 CRT mm : 0.75
Tolerance mm : ± 0.25
Check

tolerance mm : ± 0.35
Stop position
(M pump)
 $U_{act} \text{ V}$: 0.720
Tolerance Volt : ± 0.065
 CRT mm : 1.00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4.500
Tolerance Volt : ± 0.115
 CRT mm : 19.00
Tolerance mm : ± 0.80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1200
 $U_{act} \text{ V}$: 3.100
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 313.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Spread
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
 $U_{act} \text{ V}$: 3.100
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 353.0

Tolerance
cm³/1000 strokes : +— 4.0
Check tolerance
cm³/1000S. : +— 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.350
Tolerance Volt : +— 0.060
Check tolerance Volt : +— 0.060
Del. quantity cm³/1000 strokes : 19.0
Tolerance cm³/1000 strokes : +— 3.0
Speed
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 3.600
Del. quantity cm³/1000 strokes : 445.0
Tolerance cm³/1000 strokes : +— 20.0
Check tolerance cm³/1000S. : +— 24.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.01.97
Test oil : ISO 4113

Combination No. : 0 402 899 300

Injection pump
Pump designation : PE10P120A520LS8519
EP type number : 0 412 829 201

Governor
Governor design. : RE30
Governor no. : 0 421 890 036

Cust. part No. : 51.11103-7560

Customer-spec. information

Customer : MAN
Motor : D 2840 LF 20
Power KW : 441.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.95
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 10- 9- 4- 1- 8
: - 7- 6- 3- 5
: - 2

Phasing : 0-45-72-117-144
: -189-216-261-288
: -333

Tolerance
Check
tolerance °NW : + 0.50

Start of delivery blocking

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 10

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 950
Uact V : 3.100
Del. quantity cm³/1000 strokes : 270.0
Tolerance cm³/1000 strokes : +/- 1.0
Check tolerance cm³/1000S. : +/- 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 1.480
Del. quantity cm³/1000 strokes : 87.0
Tolerance cm³/1000 strokes : +/- 5.0
Check tolerance cm³/1000S. : +/- 9.0
Spread

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 750
Uact V : 3.100
Del. quantity
cm³/1000 strokes : 291.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.540
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.080
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : + - 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.440
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + - 8.0
Check tolerance
cm³/1000S. : + - 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.02.97
Test oil : ISO 4113

Combination No. : 0 402 696 031

Injection pump
Pump designation : PE6H120/320LS4
EP type number : 0 412 626 001

Governor
Governor design. : RE36
Governor no. : 0 421 890 353

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM 441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0.720
Tolerance Volt : +/- 0.065

CRT mm : 1,00

Starting position

(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : + 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : + 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.02.97
Test oil : ISO 4113

Combination No. : 0 402 696 032

Injection pump
Pump designation : PE6H120/320LS4-1
EP type number : 0 412 626 002

Governor
Governor design. : RE36
Governor no. : 0 421 890 359

Cust. part No. : 0250746402

Customer-spec. information

Customer : MB-NFZ
Motor : OM 441 LA

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 7.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 375.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1050
Uact V : 3.000
Prestroke solenoid
Stroke mm : 7.00
Del. quantity
cm3/1000 strokes : 339.0
Tolerance
cm3/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : + - 6.0

Rated speed rpm : 550
Uact V : 2.800
Prestroke solenoid
Stroke mm : 8.70
Del. quantity
cm³/1000 strokes : 367.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : + - 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.02.97
Test oil : ISO 4113

Combination No. : 0 402 698 031

Injection pump
Pump designation : PE8H120/320LS3
EP type number : 0 412 628 001

Governor
Governor design. : RE36
Governor no. : 0 421 890 353

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM 442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 7.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 8

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

Stop position
(M pump)

Uact V : 0,720
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position
(M pump)

Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 2.800
Prestroke solenoid
Stroke mm : 7.40
Del. quantity
cm³/1000 strokes : 341.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 2.900
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 333.0
Tolerance
cm³/1000 strokes : +/- 3.0

Check tolerance
cm³/1000S. : + 6.0

Rated speed rpm : 550
Uact V : 2.700
Prestroke solenoid
Stroke mm : 9.50
Del. quantity
cm³/1000 strokes : 351.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.500
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 1.900
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 108.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.03.97
Test oil : ISO 4113

Combination No. : 0 402 196 712

Injection pump
Pump designation : PES6P110A320RS3386
EP type number : 0 412 016 757

Governor
Governor design. : RE30
Governor no. : 0 421 890 044

Cust. part No. : RE 69563

Customer-spec. information

Customer : DEERE
Motor : 6068HDW55
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + - 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : + - 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + - 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + - 1.0

Prestroke mm : 3.60
Tolerance mm : + - 0.05
Check
tolerance mm : + - 0.10

Rack travel in mm : 10.50
Tolerance mm : + - 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 6.50
Tolerance : + - 0.50
Check
tolerance °NW : + - 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Tolerance mm : + - 0.50
Difference ° CS : 2.00

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Stop position
(P, R and H pump)

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.
CRT mm : 0.75
Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.35

Stop position
(M pump)
Uact V : 0,720
Tolerance Volt : +/- 0,065
CRT mm : 1,00

Starting position
(M pump)
Uact V : 4,500
Tolerance Volt : +/- 0,115
CRT mm : 19,00
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max. 1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1000
Uact V : 3.180
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : +/- 1.0

Check tolerance
cm³/1000S. : +/- 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 600
Uact V : 3.180

Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 400
Uact V : 1.590
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 400
Uact V : 1.590
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 402 996 307

Injection pump
Pump designation : PES6P120A720RS8512
: -2
EP type number : 0 412 926 212

Governor
Governor design. : RE30
Governor no. : 0 421 890 024

Cust. part No. : CCEP 5156 66-242

Customer-spec. information

Customer : RENAULT V.I.
Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.00
Tolerance mm : + 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 20.50

and maximum rack
travel : 12.00
Difference ° CS : 3.10

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min $^{-1}$: 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.30

Stop position
(P, R and H pump)

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet

and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check tolerance mm : ± 0.35

Stop position
(M pump)
 $U_{act} \text{ V}$: 0,720
Tolerance Volt : $\pm 0,065$
CRT mm : 1,00

Starting position
(M pump)
 $U_{act} \text{ V}$: 4,500
Tolerance Volt : $\pm 0,115$
CRT mm : 19,00
Tolerance mm : $\pm 0,80$

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min $^{-1}$: 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check tolerance V : ± 1.20

Engine speed min $^{-1}$: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
 $U_{act} \text{ V}$: 3.050
Del. quantity cm 3 /1000 strokes : 310.0
Tolerance cm 3 /1000 strokes : ± 1.0
Check tolerance cm 3 /1000S. : ± 5.0
Spread
Tolerance cm 3 /1000 strokes : 8.0
Check tolerance cm 3 /1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 3.260
Del. quantity
cm3/1000 strokes : 392.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 12.0
Spread
Tolerance
cm3/1000 strokes : 16.0
Check tolerance
cm3/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.310
Tolerance Volt : + - 0.060
Check tolerance
Volt : + - 0.070
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : + - 3.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : + - 19.0
Check tolerance
cm3/1000S. : + - 22.0
Spread
Tolerance
cm3/1000 strokes : 40.0
Check tolerance
cm3/1000S. : 50.0

End of test specification sheet